

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

CAO LIGHTING, INC.,

Plaintiff,

v.

GENERAL ELECTRIC COMPANY,  
CONSUMER LIGHTING (U.S.), LLC d/b/a GE  
LIGHTING, and CURRENT LIGHTING  
SOLUTIONS, LLC,

Defendants.

C.A. No. 20-681-MN

CAO LIGHTING, INC.,

Plaintiff,

v.

OSRAM SYLVANIA, INC. and  
LEDVANCE LLC,

Defendants.

C.A. No. 20-690-MN

**JOINT CLAIM CONSTRUCTION BRIEF**

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## **PLAINTIFF’S OPENING INTRODUCTION**

Plaintiff CAO Lighting, Inc. (“CAO Lighting” or “Plaintiff”) asserts that Defendants infringe U.S. Patent No. 6,465,961 (“the ’961 patent”). Defendants have identified 9 claim terms that they submit should be construed by the Court. For each of these terms, CAO Lighting believes that the claim language is clear on its face and that the plain and ordinary meaning applies—*i.e.*, no construction is necessary—while Defendants either assert the term is indefinite or improperly seek to re-write the claims to import limitations that are contrary to the plain meaning of the terms.

### **A. Overview of the ’961 Patent**

#### **1. The Inventor of the ’961 Patent and owner of CAO Lighting: Densen Cao, Ph.D.**

Dr. Densen Cao, who has a Ph.D. in materials science and engineering from the University of Utah, is an inventor on several dozens of patents directed to various uses of light emitting diodes (LEDs). Based on his LED research and pioneering patents in LED curing lights, Dr. Cao formed CAO Group, Inc. in 2000 to market and sell the very first commercial LED curing light to dentists around the world. Through another invention, CAO Group and Dr. Cao introduced the first compact diode soft-tissue laser in 2002. Dr. Cao also conceived of the invention that solved a problem that the lighting industry had struggled with: how to create an LED light source for general illumination purposes, using high-powered LED chips that could output white light, in a structure that effectively managed the heat from the LED chips but that could also be used to replace traditional incandescent, fluorescent, and halogen lamps and fixtures. Dr. Cao’s foundational invention is the platform for nearly every LED-based light on the market today and is the subject of a patent application filed on August 24, 2001, which ultimately issued as the ’961 patent.

#### **2. The ’961 Patent Describes LED-Based Lighting Sources to Replace Traditional Lighting**

The ’961 patent describes the use of semiconductor light sources incorporating a

semiconductor chip to provide visible light for general illumination of indoor and outdoor spaces used by humans. JX000018, '961 patent at 1:6-12. Prior to Dr. Cao's invention, general illumination of spaces used by humans was primarily served by incandescent, fluorescent, or halogen light sources. *Id.* at 1:16-19, 1:49-53.

Although ubiquitous in the marketplace today, in 2001 there were no available LED general purpose lighting products. LED lighting was limited to panel displays (such as computer screens), signal lighting, and other instrumentation purposes. *Id.* at 1:13-31. This prior art LED lighting lacked the high light intensity sufficient to illuminate larger spaces used by humans. *Id.* at 1:20-31. In addition, arranging a sufficient number of prior art LEDs to generate sufficient light output took too much physical space and created unmanageable amounts of heat. *Id.* Consequently, prior art LED lighting applications were not suitable to replace traditional incandescent, fluorescent or halogen light sources. *Id.*

Dr. Cao saw the need to replace traditional incandescent and fluorescent lights with LED lighting. To solve the industry's problem, he invented an arrangement of using single color, high powered LED light sources having an effective dissipation of the heat produced by those LEDs to illuminate spaces used by humans. *Id.* at 1:46-53.

A diode is a semiconductor device that allows current to flow in one direction but not the other. A *light emitting* diode is simply a semiconductor device that emits light when an electric current is passed through it. It consists of a light emitting diode (LED) chip made of semiconducting material that is treated to create a structure called a p-n junction. JX000043, Decl. of James R. Shealy at ¶ 33. When connected to a power source, current flows from the p-side or anode to the n-side, or cathode, but not in the reverse direction. *Id.* Charge-carriers (electrons and holes) flow into the junction from electrodes. *Id.* When an electron meets a hole, it falls into a



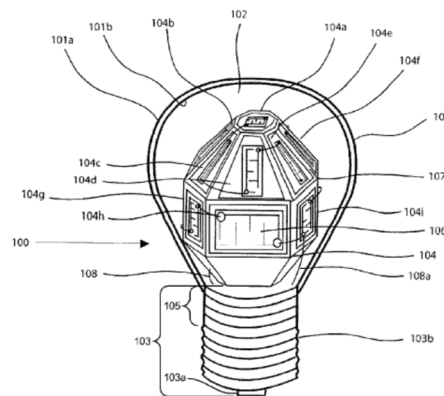
lower energy level, and releases energy in the form of a photon (light). *Id.*; *see also id.*, JX000040-43, ¶¶ 25-34.

### 3. The Claims of the '961 Patent

The '961 Patent issued on October 15, 2002, with 20 claims. In the original claims, the semiconductor light source incorporated at least one “semiconductor chip capable of emitting light.” JX000018, '961 patent, claim 1, at 10:1-2. As described below, the original 20 claims were canceled in certain *inter partes* and *ex parte* reexaminations and new claims 21-106 were submitted and found patentable. *See* JX000024, *Ex Parte* Reexamination Certificate, September 2, 2014; *see also* JX000024, *Inter Partes* Reexamination Certificate, May 11, 2017. New independent claim 21, which incorporates original Claims 1, 7, and 8, recites that the “semiconductor chip” is a “light emitting diode (LED) chip” and states that the LED chip should be “configured to output light at greater than about 40 milliwatts.” JX000026, '961 patent, claim 21.

### 4. Exemplary Embodiments of the '961 Patent

One embodiment of the invention described in the '961 patent is shown in Figure 1 (showing a semiconductor light source labeled 100). The light source 100 includes a bulb-shaped enclosure 101 (although the enclosure may be of any desired shape, including spherical, cylindrical, elliptical, domes, square, or otherwise). The '961 patent discloses that the enclosure's interior surface could be coated with a phosphor powder or coating to convert blue light generated by the LEDs into white light. The enclosure may be mounted to a support 105, which may be integral with or a separate component from a base 103. The enclosure includes an interior



**Fig. 1**  
AMENDED

volume within which at least one heat sink is located. Mounted on a heat sink are the LED chips. The heat sinks may be of any material capable of conducting heat away from the LED chips. JX000018, '961 patent at 2:49-3:57; JX000025, Figure 1 (amended). In some embodiments, the base could also serve as a heat sink. *Id.* at JX000026, 4:1-3. The '961 patent also describes the uses of high power LEDs, which, according to the patent, means that the light output is greater than 40 milliwatts. *Id.* at 4:4-7; see also JX000003, Figure 2. The patent describes the use of high power “surface-mount LEDs,” meaning that the LED chips are mounted directly on a heat sink or other surface. *Id.* at JX000026, 4:8-12. Although not limiting, these exemplary embodiments illustrate the basic elements of the '961 patent's invention. *See also* JX000061, Shealy Decl. at ¶¶ 21-24.

Given a stated objective of the '961 patent is to replace or retrofit existing non-LED general illumination lighting (*i.e.*, incandescent, halogen, fluorescent), a person of ordinary skill in the art would have readily understood that the claimed LED light source of the '961 patent would at least encompass the industry-standard types, shapes, and bases of existing light sources in 2001 in order to retrofit or replace those existing light sources. *See* JX000056-5, Decl. of James R. Benya, at ¶¶ 14-28.

## **B. Prior Litigation and Reexamination History of the '961 Patent**

In May 2011, CAO Group (CAO Lighting's predecessor in interest to the '961 patent) filed suit for patent infringement of the '961 patent in the District of Utah against several defendants, including GE Lighting and OSRAM. *See CAO Group, Inc. v. GE Lighting, Inc., et al.*, No. 2:11-cv-00426-DB-DBP, U.S. District Court for the District of Utah (“the Utah case”). GE Lighting and OSRAM filed requests for *inter partes* reexamination of the '961 patent, and the Utah lawsuit was stayed pending those reexaminations. Utah case, Dkts. 177, 183. OSRAM subsequently filed an *ex parte* request for reexamination of the '961 patent. During these reexaminations, original

claims 1-20 of the '961 patent were canceled. On September 2, 2014, the Patent Office issued an *Ex Parte* Reexamination Certificate stating that new claims 21-103 were deemed patentable. On May 11, 2017, the Patent Office issued an *Inter Partes* Reexamination Certificate. The Utah lawsuit was ultimately dismissed without prejudice, and CAO Lighting now asserts the '961 patent against Defendants in this action.

The '961 patent was the subject of another lawsuit filed in the U.S. District Court for the Northern District of Illinois, *CAO Lighting, Inc. v. Light Efficient Design*, No. 1:17-cv-07359 (“the *Light Efficient Design* case”). On April 3, 2019, the Illinois District Court entered an order construing certain claim terms of the '961 patent (“Light Efficient Design Order”). *See* JX000092-123. The Light Efficient Design case was dismissed by joint stipulation on July 24, 2020.

The '961 patent is also the subject of a pending lawsuit in the U.S. District Court for the Central District of California, *CAO Lighting, Inc. v. Feit Electric Company, Inc.*, No. 20-cv-4926-AB (“the *Feit* case”). The California District Court recently issued a Claim Construction Order on September 1, 2021 (“Feit Order”). *See* JX000124-145.

## **DEFENDANTS’ ANSWERING INTRODUCTION**

Contrary to CAO’s assertion that this case is about a “foundational invention” relating to LED light sources, the '961 patent in reality contains narrow claims, all of which are expired and cover antiquated technology. In fact, when the '961 patent was challenged during reexamination, CAO necessarily cancelled all twenty original claims after they were rejected by the PTO. CAO salvaged the '961 patent only by adding far narrower claims in an *ex parte* proceeding where Defendants could not participate. For example, the sole newly added “independent” claim—claim 21—includes at least 20 separate limitations.

Having escaped *ex parte* reexamination with its new narrowly written claims, CAO now seeks to broaden them via claim construction. CAO's broad and nebulous proposed "constructions" effectively vitiate significant claim language—sometimes the entire claim limitation at issue. That is obviously wrong. All claim language must be given meaning. And of course, a patentee who has retained its patent by narrowing claims cannot then broaden them by eliminating claim limitations—through "construction" or otherwise.

Only Defendants' proposed constructions give meaning to all of the claim language at issue, and therefore should be adopted.

## **PLAINTIFF'S REPLY INTRODUCTION**

In its Opening Claim Construction Brief ("Br."), CAO Lighting offers that the disputed claim terms—most of which are common, non-technical words—should be given their plain and ordinary meaning. In their Answering Claim Construction Brief ("Opp'n"), Defendants ask the Court to add extraneous limitations on top of the plain and ordinary meaning, sometimes based only on the testimony of their expert and with no support in the intrinsic evidence.

### **I. DISPUTED CONSTRUCTIONS**

#### **A. TERM 1: "said enclosure being fabricated from a material substantially transparent to white light"**

##### **1. Plaintiff's Opening Position**

<b>Plaintiff's Proposed Construction</b>	<b>Defendants' Proposed Construction</b>
Plain and ordinary meaning: The enclosure is fabricated from a material that is substantially transparent to white light.	The entirety of the enclosure is fabricated from a material that is substantially transparent to white light.

Term 1 needs no construction. In fact, Defendants' proposed construction repeats the claim language nearly verbatim. The only "dispute" concerns Defendants' proposal that the Court add the words "[t]he entirety of" to the claim language, presumably with the hope that the Court will

require that the enclosure be fabricated entirely (and only) of “a material that is substantially transparent to white light.”

The Court should reject Defendants’ attempt to re-write the claim language. Throughout the claim construction process, the claim language is paramount. *Innogenics v. Abbott Labs.*, 512 F.3d 1363, 1370 (Fed. Cir. 2008). A claim term generally must be given its ordinary and customary meaning as would have been understood by persons of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313-14 (Fed. Cir. 2005) (*en banc*). “[A] court must presume that the terms in the claim mean what they say, and, unless otherwise compelled, give full effect to the ordinary and customary meaning of a claim term.” *Johnson Worldwide Associates, Inc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed. Cir. 1999). Importantly, “[g]eneral descriptive terms will ordinarily be given their full meaning; modifiers will not be added to broad terms standing alone.” *Id.* at 989-92 (construing “heading signal” according to its ordinary meaning and citing cases for not limiting the unmodified term “reciprocating” to linear reciprocation not limiting the unmodified term “associating” to explicit association.)

Here, Defendants directly violate this claim construction rule. Defendants’ proposed construction parrots back the claim language but adds modifying language “the entirety of” to the term “enclosure.” Defendants do not construe or interpret this claim term; they simply put a limitation in front of it. Nothing in the ’961 patent or its voluminous file history supports limiting the full scope of the claim language in the way that Defendants propose. There is no re-definition or disclaimer in the intrinsic record that could possibly limit the full scope of the plain meaning of this term. For example, the specification makes clear that the “enclosure”—which may be of any desired shape—“may be made from any desired light transparent or translucent materials.” JX000018, ’961 patent at 2:53-56. The enclosure’s exterior surface may be smooth and glossy,

matte, or another finish or texture; it may be coated or painted with desired materials. *Id.* at 2:59-63. In addition, a person of ordinary skill in the art would understand an enclosure would be fabricated from a material substantially transparent to white light in order to illuminate desired or intended spaces used by humans. *See* JX000056, Benya Decl. at ¶¶ 14-15; *see also id.*, at JX000057-69, ¶¶ 17-28. But the enclosure may also have portions (caps, ends, structural or decorative elements, etc.) that may be fabricated from materials that are not transparent to white light, *e.g.*, opaque materials, so long as the intended illumination of the space occurred by humans could be met. *Id.*, JX000056, at ¶ 14. Nothing in the intrinsic record, requires “the entirety of” the enclosure to be fabricated in the same manner or with the same material.

Because there is no dispute over the actual claim language in Term 1, the Court should reject Defendants’ attempt to restrict the plain and ordinary meaning of the claim language. Furthermore, as explained below, Defendants’ proposed constructions for Terms 1-3 contradicts both claimed and disclosed embodiments of the invention—yet another reason to reject Defendants’ proposed constructions for all three of these disputed terms.

## 2. Defendants’ Answering Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
plain and ordinary meaning: The enclosure is fabricated from a material that is substantially transparent to white light	The entirety of the enclosure is fabricated from a material that is substantially transparent to white light

The parties’ dispute boils down to the question: is it sufficient for only a portion of the enclosure to be “fabricated from a material that is substantially transparent to white light,” as CAO says in an improper attempt to encompass enclosures that are fabricated only in part from the required substantially transparent material? Or must the entirety of the enclosure be so fabricated, as Defendants propose, consistent with the intrinsic record? The answer is the latter.

Although CAO asks the Court to adopt the “plain and ordinary meaning,” what CAO actually seeks is to rewrite the claim to allow “the enclosure [to] also have portions (caps, ends, structural or decorative elements, etc.) that may be fabricated from materials that are *not* transparent to white light, *e.g.*, opaque materials. . . .” CAO’s Opening Br. at 6–7 (citing Benya Dec., ¶ 14) (emphasis added). CAO’s rewrite is supported solely by a single paragraph of an expert declaration, which should be disregarded because it is conclusory and finds no support in (and is contradicted by) the claim language and patent specification.

CAO criticizes Defendants’ proposal as adding the requirement that “the entirety of the enclosure is fabricated from. . . .” CAO’s Opening Br. at 5–6. Yet that is what the claim requires: “an enclosure, *said* enclosure [*i.e.*, the entire enclosure] being fabricated from a material substantially transparent to white light.” JX000022, ’961 Patent at 9:55–56 (emphasis added). CAO effectively asks the Court to rewrite the claim as follows: “an enclosure, ~~said enclosure being fabricated from a~~ [comprising] material substantially transparent to white light.” But if the applicant had meant to use an open-ended term such as “comprising,” he knew how to do so—the word “comprising” appears throughout the ’961 patent’s claims, *but not in this limitation*. Contrast ’961 patent, cl. 1 (“the semiconductor light source comprising. . . .”). CAO cannot go back now and make this limitation into a “comprising” term where the applicant did not.

The specification also supports Defendants’ (not CAO’s) proposal. *See, e.g.*, JX000021, ’961 patent at 8:42–45 (“The enclosure 1003 may be glass, plastic, polycarbonate or any other material that is substantially transparent to the light to be emitted.”); *see also* JX000018, 2:55–3:8 (describing an enclosure “made from” light-transparent material that is subsequently coated with “other materials” for converting the transmitted light). The specification never describes making “said enclosure,” or any part thereof, from any “opaque material.” Likewise, no enclosure

illustration indicates that any part of the enclosure may be opaque or fabricated from a material not substantially transparent to white light. *See* Fig. 1 (enclosure 101); Fig. 2 (enclosure 2201); Fig. 10 (enclosure 1003). Defendants’ construction should thus be adopted.

### 3. Plaintiffs’ Reply Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning: The enclosure is fabricated from a material that is substantially transparent to white light.	The entirety of the enclosure is fabricated from a material that is substantially transparent to white light.

Term 1 needs no construction—both parties’ constructions copy the actual claim language. The only dispute is whether Defendants’ attempt to add limitations *not* found in the claim language or specification is proper. Defendants provide no permissible basis for adding the limitation “[t]he entirety” to the plain claim language. This Court must presume that the terms in the claim mean what they say and not add modifiers to terms standing alone. *Johnson Worldwide Associates, Inc. v. Zebco Corp.*, 175 F. 3d 985, 989 (Fed. Cir. 1999).

There are only two exceptions to the general rule that claim terms are construed only according to their plain and ordinary meaning: “1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either in the specification or during production.” *Golden Bridget Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (quoting *Thorner v. Sony Comp. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)); *see also*, *GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) (“[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal.”). The standards for finding that these exceptions apply are “exacting.” *Id.* Here, Defendants can point to no clear disavowal of claim scope, or intrinsic evidence that Dr. Cao intended to limit the claim such that “the entirety” of the enclosure is transparent.



Nothing in the claim language requires “the entirety of” the enclosure be transparent. Those words do not appear anywhere in the claims. Nor does anything in the specification require the entirety of the enclosure be transparent. The specification teaches that light can be transmitted “in all directions except through the base” or “in a specific direction.” JX000019, ’961 patent at 3:38-42. To that end, the enclosure, having a substantially transparent material, can be “of any desired shape, including spherical, cylindrical, elliptical, domed, square, n-sided where n is an integer, or otherwise”—it can be shaped like “a bulb, but flat, arcuate, rounded or other shapes may be used depending on the application.” *Id.* at JX000018, 2:52-55, 8:40-43. A POSA seeking to replace existing lights for illuminating spaces with more efficient LED light sources would be familiar with a variety of different light shapes and a variety of differently shaped substantially transparent portions for achieving the goals of the Dr. Cao’s invention—nothing in the claims or the intrinsic evidence prevents those different shapes and transparent portions from being used within the scope of the ’961 patent claims. *See*, JX000056-69, Benya Decl. at ¶¶ 16-28.

Defendants attack CAO Lighting’s expert for saying that a POSA would understand that the enclosure could also have opaque elements such as caps, ends, or structural or decorative elements. First, the specification supports this position, teaching that the exterior surface of the enclosure “may be coated or painted with desired materials.” JX000018, ’961 patent at 2:61-63.<sup>1</sup> Further, CAO Lighting expert Benya does not testify about opaque elements in a vacuum. He explains how a person of ordinary skill would understand that the LED lights of the invention

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<sup>1</sup> Notably, this broad teaching on elements placed on the external surface contrasts with the specification’s further statements that the interior surface can include an “appropriate coating” such as “a luminous powder coating,” which can include a phosphor powder. JX000018, ’961 patent at 2:63-67. That is, coatings on the interior surface can be those that, for example, convert blue light to white (’961 patent at 2:67-3:5), but the paint or coating on the exterior surface is not so limited.

would replace, and include many of the features of, existing non-LED lights. JX000056-57, Benya Decl. at ¶¶ 16-17. He further attaches lighting catalogs from a time before the '961 patent (JX000147, GE Lighting Lamp Products Catalog; JX000327, OSRAM General Lighting Products). JX000061, Benya Decl. at ¶ 24. Opaque elements or portions on enclosures can be seen in a number of the lights illustrated in JX000147 and JX000327.

Defendants also assert that CAO Lighting rewrites the claim to include “comprising.” Opp’n at 2. But the claim already includes the term “comprising.” Claim 1 recites a “semiconductor light source comprising: an enclosure . . . ; an interior volume . . . ; a heat sink . . . ; [and] at least one semiconductor chip . . .” JX000018, '961 patent at cl. 1. Of course a light source falling within claim 1 can have additional structural and optical elements. Different shapes and features would be required for adapting the light sources described in the specification for their intended purposes—including light sources that transmit light “in a specific direction” and that have single-sided or flat “enclosures.” A directional light (such as spot-light or a recessed downlight in one’s home) would have a different shape and different transparent portions as compared to a general purpose bulb-shaped light. *See* JX000058-59, 61-70, Benya Decl. at ¶¶ 18, 19, and 25.

Defendants’ construction requiring transparency everywhere is contrary to law (by impermissibly adding a modifier to a broad term standing alone) and contrary to the intrinsic evidence. The Court should stay true to the language of the claim and reject Defendants’ flawed construction.

#### 4. Defendants’ Sur-Reply Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
plain and ordinary meaning: The enclosure is fabricated from a material that is substantially transparent to white light	The entirety of the enclosure is fabricated from a material that is substantially transparent to white light

CAO does not dispute (i) that its “plain” meaning interpretation rewrites the claim to allow for *only a portion* of the enclosure to be “fabricated from a material substantially transparent to white light,” (ii) that the specification discloses only that the *entire* enclosure is so fabricated (not a portion thereof), and (iii) that the specification never discloses fabricating the enclosure (or any portion thereof) from an opaque material. *See* Defendants’ Answering Br. at 2-3.

CAO’s argument regarding lexicography and disclaimer is a red herring. Defendants do not contend either applies. Rather, Defendants contend their construction is required by the claim language, under which the entire enclosure—not some portion thereof—is “fabricated” from the required material. CAO’s citations to the specification actually support Defendants’ interpretation, emphasizing that the enclosure is “made from” (*i.e.*, “fabricated from”) the requisite material, which material may be *subsequently* coated in a *post-fabrication* step. *See* JX000019, ’961 Patent at 2:55-3:8. This subsequent coating applied to the light-transparent material is separately claimed, *i.e.*, is not part of the claimed “enclosure ... fabricated from a material substantially transparent to white light.” *See* JX000018, ’961 Patent, cl. 1 (“a coating for converting monochromatic light emitted by said chip to white light”); *see* JX000018, ’961 Patent, cl. 2 (“said coating is located on the interior of said enclosure”). Thus, whether such subsequent coating is itself substantially transparent is irrelevant to whether the enclosure is “fabricated” from the required “substantially transparent” material.

CAO’s assertion that the patent discloses various shaped enclosures is a *non sequitur*. There is no dispute that the enclosure may be various shapes. The dispute is whether part of the enclosure can be fabricated from a non-substantially-white-light-transparent material. Likewise, CAO’s expert’s testimony that enclosures “*may be* fabricated from materials that are not transparent to white light, *e.g.*, opaque materials,” is completely beside the point. *See* JX000057,

Benya Decl., ¶ 14 (emphasis added). While *other* enclosures “may be fabricated from ... opaque materials,” *these claims* only cover enclosures that are made from substantially transparent materials. *See* JX000685 (defining “opaque” as “impervious to the rays of visible light—not transparent or translucent”).

## **B. TERM 2: “an interior volume within said enclosure”**

### **1. Plaintiff’s Opening Position**

<b>Plaintiff’s Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
Plain and ordinary meaning: An interior volume is within the enclosure but does not need to be entirely within the enclosure.	The interior volume is contained inside the enclosure that is fabricated from a material that is substantially transparent to white light.

The only dispute between the parties is whether the word “within” needs to be replaced with the restrictive words “contained inside.” It does not. “In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Phillips*, 415 F.3d at 1314. That is the case here: the word “within” is a common, non-technical word, readily understandable to any juror, and need not be construed. Defendants, however, propose replacing the word “within” chosen by the inventor with a more restrictive phrase “contained inside” not chosen by the inventor. Defendants propose the same replacement of the word “in” in Terms 3 and 8 below. Neither “within” nor “in” should be restricted as Defendants propose, however.

*Cannon Rubber Ltd. v. The First Years, Inc.*, 163 Fed. Appx. 870 (Fed. Cir. 2005), is instructive. In that case, the Federal Circuit held the district court erred by restricting the word “in” (“diaphragm disposed *in* the body”) to mean “entirely in.” *Id.* at 875. The Court stated: “As an initial matter, we note that the term ‘in’ is a simple, non-technical term, and that under its ordinary meaning, a ‘diaphragm disposed in the body’ includes both diaphragms contained entirely and

partially in the body.” *Id.* The Court explained that “a trash bag is ‘in’ a trashcan even though a portion of it is hanging outside the trashcan.” *Id.* Similarly, a person is “in” or “within” a bathtub or swimming pool even though a part of that person’s body is not entirely submerged under water.

In addition, the California District Court in the *Feit* case previously considered a very similar argument from the defendant in that lawsuit in construing the ’961 patent. The *Feit* Court rejected the argument that the term “in”—which is also in dispute in this case as part of Terms 3 and 8—should be restricted to mean “entirely within”:

The Court agrees with Plaintiff that the term “in” in the claims does not mean “entirely within.” As Plaintiff argues, the plain and ordinary meaning of the word “in” is not limited to “entirely within”; rather, it can mean *either* partially or entirely within ... By contrast, Defendant’s construction seeks to import limitations from the description of the preferred embodiments in the specification, which the Federal Circuit has constantly cautioned against.

JX000134, *Feit* Order at 10 (Court’s emphasis).<sup>2</sup>

The court “may depart from the plain meaning of a claim term when the patentee has acted as a lexicographer or when the patentee has clearly limited the scope of the invention through a disclaimer in the specification or prosecution history.” *Cannon Rubber*, 163 Fed. Appx. at 875. Neither situation has occurred here. The Court should reject Defendants’ proposed construction as an improper and unwarranted restriction on the plain and ordinary meaning of claim language.

## 2. Defendants’ Answering Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
plain and ordinary meaning: An interior volume is within the enclosure but does not need to be entirely within the enclosure	The interior volume is contained inside the enclosure that is fabricated entirely from a material substantially transparent to white light.

<sup>2</sup> Even though this Court is not bound to follow the *Feit* Court’s claim constructions, “consistent with the principle of stare decisis, or the rule of adherence to judicial precedents, it should give consideration to the claim construction order from” the *Feit* case. *Linear Technology Corp. v. Monolithic Power Systems, Inc.*, C.A. No. 06–476-GMS, 2007 WL 6126455, at \*2 (D. Del. Nov. 20, 2007) (citing *United States v. Weaver*, 267 F.3d 231, 247 (3d Cir. 2001) (further citation omitted)).

Defendants incorporate by reference their argument on Term 3 below.

### 3. Plaintiff's Reply Position

Plaintiff's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning: An interior volume is within the enclosure but does not need to be entirely within the enclosure.	The interior volume is contained inside the enclosure that is fabricated from a material that is substantially transparent to white light.

Defendants propose constructions of “within” in Term 2 and “in” in Term 3 as “contained inside.” Given Defendants’ identical position on these terms, and the fact that Defendants treat them as equivalent in their argument—arguing their position on Term 2 only by reference to their argument for Term 3—CAO Lighting also argues Terms 2 and 3 together by reference to the argument for Term 3 below.

### 4. Defendants' Sur-Reply Position

Plaintiff's Proposed Construction	Defendants' Proposed Construction
plain and ordinary meaning: An interior volume is within the enclosure but does not need to be entirely within the enclosure	The interior volume is contained inside the enclosure that is fabricated entirely from a material substantially transparent to white light.

Defendants incorporate by reference their argument on Term 3 below.

## C. TERM 3: “a heat sink located in said interior volume”

### 1. Plaintiff's Opening Position

Plaintiff's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning: A heat sink is a substance or device that absorbs or draws heat from another object and is in the interior volume of the enclosure, but does not need to be entirely within the interior volume.	A heat sink that is contained inside the interior volume of the enclosure

As with Term 2, Defendants seek only to replace the common, non-technical word “in” with the restrictive words “contained inside.” As discussed above, the plain meaning of the word “in” includes partially or entirely within, and Defendants’ attempt to restrict its plain meaning is

improper. *See Cannon Rubber*, 163 Fed. Appx. at 875; *see also* Ex. 4, Feit Order at 10. Nothing in the intrinsic record demonstrates either redefinition or disclaimer. Rather, as discussed below, the intrinsic record supports the full scope of the plain meaning of “in.”

On its face, nothing in the claim language requires the heat sink to be entirely contained inside the interior volume of the enclosure. In fact, other claims reinforce Plaintiff’s position. Dependent claim 29 recites that the enclosure has an opening that “is large enough for said heat sink to pass through said opening.” JX000027, ’961 patent, claim 29. Thus, the heat sink as contemplated by Claim 29 could include a heat sink partly in and partly outside the interior volume of the enclosure, as the *Feit* Court found. JX000134, Feit Order at 10. Embodiments described in the specification provide further support, as the *Feit* Court explained:

[T]he specification discloses that the base the enclosure is mounted on may act as the heat sink, meaning that the heat sink would not be entirely within the enclosure or interior volume. *See* ’961 Patent at 3:15-18, 4:1-2; *see also id.* Figs. 1, 2, 6, 3:17-19 (“The base may be configured as a fitting or connector ...”); 7:37-40 (describing the threaded “fitting or connector” at “the bottom of the heat sink” depicted in Fig. 6). Thus, the claimed “heat sink” would not necessarily be “entirely within” the “interior volume within said enclosure” ....

*Id.*

The ’961 patent also makes clear that the claimed “heat sink” is simply some material that draws or conducts heat away from another object (here, the LED chip). To reduce heat from the LED chips, the heat sink “may be of any material capable of conducting heat away from the semiconductor devices.” JX000019, ’961 patent at 3:53-54. The heat sink “may be of any desired shape depending on the application.” *Id.* at JX000019, 3:23-24. As the *Feit* Court held, the term “heat sink” is simply a “substance or device that absorbs or draws heat from another object.” JX000135-37, Feit Order at 11-13. Thus, nothing in the intrinsic record limits the size, shape, dimension, or positioning of the claimed heat sink, so long as it is at least partially in the interior

volume to draw heat from the LED chips. The *Feit* Court correctly rejected the argument advanced by Defendants here, and this Court should do so as well. *See Linear*, 2007 WL 6126455, at \*2.<sup>3</sup>

In fact, no other construction is consistent with the specification disclosure. Referencing Figure 1, the specification discloses that the claimed semiconductor light source (100) includes a support (105), and “the heat sink 104 may be mounted on [the] support 105.” JX000019, ’961 patent at 3:30-36. The purpose for mounting the heat sink on the support is “to place the heat sink in the most desirable position within the interior volume 102 so that the semiconductors located on the heat sink may emit light that will be transmitted ... through the enclosure 101.” *Id.* There is no need, nor is it ever required in the various embodiments of the specification, that the heat sink must be contained entirely inside the transparent portion of the enclosure. In fact, as explained above, the enclosure may have an opening (*e.g.*, extending into the support area where the heat sink may be mounted) to accomplish an embodiment of the invention. *See* discussion *supra* concerning the ’961 patent, claim 29.

Defendants’ results-oriented claim construction positions—that the enclosure be *entirely* made of transparent material, that the interior volume be *entirely* inside the enclosure, and that the heat sink be *entirely* in the interior volume—add up to a result never contemplated, and in fact contradicted, by the claims and the disclosures in the specification. The Court should reject Defendants’ proposed construction and adopt Plaintiff’s position.

## 2. Defendants’ Answering Position

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<sup>3</sup> In rejecting the argument that “in” should not be restricted to mean “entirely within,” the *Feit* Court properly gave no weight to *dicta* from a prior ruling in the *Light Efficient Design* case that also adopted a plain language construction of “in” but then suggested that it might nonetheless be restricted to “entirely within.” JX000092 (Light Efficient Design Order); *compare* JX000124 (Feit Order).



Plaintiff's Proposed Construction	Defendants' Proposed Construction
plain and ordinary meaning: a heat sink is a substance or device that absorbs or draws heat from another object and is in the interior volume of the enclosure, but it does not need to be entirely within the interior volume	A heat sink that is contained inside the interior volume of the enclosure

Defendants address Terms 2 and 3 together because both relate to the heat sink location. The parties dispute whether the claimed heat sink must be contained entirely inside the “interior volume” which is entirely inside “said enclosure” (Defendants’ position) or whether it can be partially inside the “interior volume” which is only partially inside “said enclosure” (CAO’s position). The first district court to address this issue construed the claim as Defendants propose; the second court construed it as CAO proposes. As discussed below, the first court was correct because it gave full meaning to *all* of the claim language rather than focusing, as CAO urges, on the words “in” and “within” in isolation from the rest of the claim.

Like Term 1, CAO does not address the full claim language for Terms 2 and 3. Under the plain meaning all of the words, the “interior volume” that is “within an enclosure” does *not* include space that is “not . . . within the enclosure.” CAO’s reading effectively and improperly writes the word “interior” out of the claim—if the relevant “volume” could be *both* inside *and* extend *outside* of “the enclosure,” then it would not be an “*interior* volume.” Such a result is at odds with the plain meaning of the word “interior.” JX000386 (interior means “internal; being within, opposed to exterior”). Moreover, a “volume” must be defined by some boundaries—it is impossible to determine the “volume” of something without knowing its dimensions. The claim as written and as Defendants propose it be construed allows the “interior volume” to be determined based on the enclosure; CAO’s nebulous proposed construction, in which the “interior volume” extends endlessly into space, does not.

CAO focuses on the words “in” and “within” in isolation so it can rely (as did the second district court) on a Federal Circuit case that interpreted the language “diaphragm disposed in the body,” and considered the phrase “trash bag [] ‘in’ a trashcan.” *Cannon Rubber Ltd. v. The First Years, Inc.*, 163 Fed. Appx. 870, 874–75 (Fed. Cir. 2005). *Cannon Rubber* held that the claim language at issue allowed the diaphragm to be partially outside the body. *Id.* at 875. CAO’s attempt to analogize its claim language to the *Cannon Rubber* language fails. A heat sink “***in*** said ***interior volume***” “***within*** said ***enclosure***” is dramatically different from the “diaphragm disposed in the body” or “trash bag in the trashcan” language. First, the claim requires an “enclosure” which is enclosed; *Cannon Rubber* in contrast concerned a “body” which does not necessitate a state of being enclosed. Second, the claim language defines a precise space—a “volume”—that is “within the enclosure”; the *Cannon Rubber* language does not. Third, the claim language emphasizes that this “volume” is an “interior” volume—again, the precise space “within” the “enclosure.”

For these reasons, it is not surprising that the first district court to consider this language concluded: “Here, the claim should be given its plain meaning, which is that the heat sink is ‘located in said interior volume’—and nowhere else.” JX000124 (LED CC Order).

CAO argues that claim 29 reinforces its position because claim 29 “recites that the enclosure has an opening that ‘is large enough for said heat sink to pass through said opening.’” CAO’s Opening Br. at 9. Such an opening merely allows insertion of the heat sink into the enclosure during manufacture, and therefore reinforces Defendants’ position that the heat sink is ***in the interior volume within the enclosure*** once manufacture is complete.

CAO also argues that the specification discloses embodiments where the base “may act as a heat sink,” (*id.* (quoting JX000134 (*Feit* CC Order) at 10), but the specification also makes clear those are alternatives to the claimed embodiment. The specification begins by discussing an

embodiment, like claim 1, wherein “[l]ocated within the interior volume 102 is at least one heat sink 104.” JX000019, ’961 Patent at 3:22–23 (emphasis added). The specification then describes “alternative embodiments” where “the base may also serve as a heat sink, *eliminating the need for a separate heat [s]ink.*” *Id.* at JX000019, 3:65, 4:1–3 (emphasis added). Thus, the “alternative” use of the base as a heat sink “eliminat[es] the need for a separate heat [s]ink” like the heat sink “[l]ocated within the interior volume 102.” Claim 1, which requires “a heat sink located in [the] interior volume” does not claim the “alternative embodiments” that “eliminat[e] the need for a separate heat [s]ink.”

### 3. Plaintiff’s Reply Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning: A heat sink is a substance or device that absorbs or draws heat from another object and is in the interior volume of the enclosure, but does not need to be entirely within the interior volume.	A heat sink that is contained inside the interior volume of the enclosure

Defendants argue that CAO Lighting “focuses on the words ‘in’ and ‘within’ in isolation.” Opp’n at 4. Yet, the crux of the parties’ dispute is over the words “in” and “within.” Defendants replace the words “in” or “within” with a more restrictive phrase—contained inside. CAO Lighting focuses on the words “in” and “within” because they are the only words *found in the claim* that are disputed.

The dispute here is about the plain meaning of “in” and “within”—common, non-technical words, readily understandable to any juror. *Cannon Rubber Ltd. v. The First Years, Inc.*, 163 Fed. Appx. 870 (Fed. Cir. 2005) is dispositive on the plain meaning of “in”: it includes elements that are either entirely or partially in. *Id.* at 875; Br. at 7-9. Defendants attempt to distinguish *Cannon Rubber* by calling it “dramatically different” (Opp’n at 4), but they overlook *Cannon Rubber*’s own admonition that this plain meaning of the term “in” can only be avoided “when the patentee

has acted as a lexicographer or when the patentee has clearly limited the scope of the invention through a disclaimer in the specification or prosecution history.” *Cannon Rubber*, 163 Fed. Appx. at 875. Defendants never try to meet this test (and they cannot).

The trial court in *Cannon Rubber* is not the only trial court to be overturned for improperly restricting the plain meaning of “in” and “within.” In *Foster v. Hallco Mfg.*, the Federal Circuit reversed a summary judgment of non-infringement based upon claim constructions of “in” and “within” that the trial court had improperly limited to “require that something be completely and continuously within something else.” *Foster v. Hallco Mfg. Co., Inc.*, 119 F.3d 16 (Table), 1997 WL 419391 at \*8 (Fed. Cir. 1997) (unpublished). Instead, the Federal Circuit saw that “in” and “within” can be met by a component that is located at least in part in the relevant space. *Id.* Defendants push this Court to err. The *Feit* court understood this, agreeing with CAO Lighting that the term “in” in the claims of the ’961 patent “does not mean ‘entirely within’; rather, it can mean *either* partially or entirely within.” JX000134. The law on the plain meaning of these terms is overwhelming.

On its face, nothing in the claim language here requires the heat sink to be entirely contained inside the enclosure. In fact, the specification provides that “the base may also serve as a heat sink,” with the base extending outside of the enclosure in every embodiment. Remarkably, and as further explained below, Defendants’ opposition both (1) distorts the meaning of the specification on this topic (including the meaning of the word “alternative”) by placing phrases from different paragraphs in the specification in the same sentence in Defendants’ brief, and (2) makes a circular argument that, starting from a position of accepting the Defendants’ claim constructions, the specification disclosing an embodiment that is inconsistent with their desired

claim constructions means that the embodiment is an alternative to claim 1 and thereby supports their claim constructions. Opp'n at 5.

First, Defendants distort the use of the word “alternative” in the specification, asserting that the word “alternative” means that everything that follows for the remainder of the paragraph is an “alternative” to claim 1. Turning to the specification is instructive:

In alternative embodiments of the invention, each semiconductor device may have its own individual heat sink, or two or more semiconductor devices may be located on the same heat sink.

JX000019, '961 patent at 3:65-4:1. This is not an alternative to claim 1—these are embodiments that are alternative to each other. Defendants' complex splicing and italicizing of separate portions of the specification into a single sentence in their brief does not (and cannot) change the meaning of this simple sentence.

Next, the specification states:

In some embodiments of the invention, the base may also serve as a heat sink, eliminating the need for a separate heat sink and thereby reducing cost.

JX000019, '961 patent at 4:1-3. Putting this quote in the context of the whole specification, one sees that:

Heat sinks used in this invention can be of a variety of shapes and dimensions, such as those depicted in the drawings or any others which are useful for the structure of the particular light source being constructed.

JX000023, '961 patent at 9:30-33. The specification further describes that one goal of the heat sink is to locate the LEDs on the heat sink within the interior volume so that they emit light through the enclosure in a desired pattern. *Id.* at JX000019, 3:31-36. As the *Feit* Court understood when considering this claim language in the context of the intrinsic evidence, using the base as a heat sink means that the heat sink need not be entirely within the interior volume:

[T]he specification discloses that the base the enclosure is mounted on may act as the heat sink, meaning that the heat sink would not be

entirely within the enclosure or interior volume. *See* '961 Patent at 3:15-18, 4:1-2; *see also id.* Figs. 1, 2, 6, 3:17-19 ('The base may be configured as a fitting or connector ...'); 7:37-40 (describing the threaded "fitting or connector" at "the bottom of the heat sink" depicted in Fig. 6). Thus, the claimed "heat sink" would not necessarily be "entirely within" the "interior volume within said enclosure" ....

JX000134.<sup>4</sup>

Defendants also accuse CAO Lighting of "writ[ing] the word 'interior' out of the claim." Opp'n at 4. But the word "interior" *is* in CAO Lighting's construction – just as it is in Defendants' construction. More importantly, Defendants' use of the term "interior volume" in their construction is incorrect and distorts the meaning of the actual claim language. Defendants propose in Term 3 that the heat sink is "contained inside the interior volume *of* the enclosure." *See*, Term 3, Defendants' Proposed Construction (emphasis added). The "interior volume," however, is not a feature of the enclosure—it is a feature of the claimed light source. The light source is claimed as a "semiconductor light source comprising" several elements. JX000018, '961 patent at cl. 1. One of the elements making up the light source is an interior volume—that is, an interior volume *of* the light source. The claim goes on to describe a location of the interior volume of the light source: it is "within said enclosure"—where "within" has its plain and ordinary meaning as described above. The claim language never characterizes the "interior volume" as an "interior volume *of* the enclosure," and the Court should decline to do so through Defendants' proposed construction.

#### 4. Defendants' Sur-Reply Position

Plaintiff's Proposed Construction	Defendants' Proposed Construction
plain and ordinary meaning: a heat sink is a substance or device that absorbs or draws heat	A heat sink that is contained inside the interior volume of the enclosure

<sup>4</sup> A flaw in the *Light Efficient Design* opinion is that it never considered that the base could be used as a heat sink. JX000147-50.

from another object and is in the interior volume of the enclosure, but it does not need to be entirely within the interior volume	
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Regarding Terms 2 and 3, the claims expressly define the space in which the heat sink resides: “*in* said *interior volume*” “*within* said *enclosure*.” By the plain meaning of these words, the heat sink is in an “interior” (not exterior) “volume” (defined space) that is “within” an “enclose[ed]” (not open) space.

CAO continues to ignore the full text of the claims when it argues that the “dispute here is about the plain meaning of ‘in’ and ‘within.’” CAO’s Reply Br. at 4. As Defendants previously explained, CAO contradicts the ordinary meaning of “interior volume,” and indeed reads those words out of the claim, when it argues that Term 2 should be construed to mean that the “interior volume within [the] enclosure” can be “not ... within the enclosure.” Defendants’ Answering Br. at 4; *see* JX000386 (interior means “internal; being within, opposed to exterior”).

CAO incorrectly argues that the “interior volume” is “not a feature of the enclosure—it is a feature of the claimed light source.” CAO’s Reply Br. at 7. But the claim says “an interior volume *within* said *enclosure*,” making the “interior volume” necessarily a feature of the “enclosure.” *See* JX000018, ’961 Patent, cl. 1. The fact that the “enclosure” is part of the “light source” does not change the fact that the “interior volume” is “*within* said *enclosure*.”

Finally, CAO quarrels with Defendants’ argument that the *claimed* embodiment where the heat sink is “[l]ocated within the interior volume,” is distinct from a different embodiment discussed in the specification in which “the base may also serve as a heat sink.” CAO’s Reply Br. at 5-7. But Defendants clearly are correct. According to the specification, “[i]n *some* embodiments of the invention, the base may also serve as a heat sink, *eliminating the need for a separate heat sink* and thereby reducing cost.” JX000019, ’961 Patent at 4:1-3 (emphases added). Because that

possible embodiment “*eliminat[es]* the need for a separate heat sink ... thereby reducing cost,” it is an alternative to the claimed embodiment which has a heat sink “located within the interior volume.”

**D. TERM 4: “said panels on said heat sink being oriented to facilitate emission of light ... in desired directions around the semiconductor source light source”**

**1. Plaintiff’s Opening Position**

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning: The panels on the heat sink are oriented to facilitate the emission of light in any desired (intended or predetermined) direction including the same direction.	Indefinite as to “desired directions”; or Each of the panels on the heat sink is oriented angularly with respect to each other in more than one direction in order to cause light from the LEDs to be dispersed around the semiconductor source light source.

Defendants first contend that the term “desired directions” is indefinite. A claim term is indefinite only if it fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 9001 (2014). Although Defendants here have not yet explained why the term is indefinite, the Defendant in the *Feit* case made a similar argument, which the *Feit* Court rejected. JX000139-40, *Feit* Order. In the context of the ’961 patent, the term “desired” simply means “intended” or “predetermined.” *Id.* at JX000140. The *Feit* Court explained:

As the specification emphasizes, “the invention relates to semiconductor light sources and illumination devices useful for providing visible light in order to partially or fully illuminate a space occupied or viewed by humans[.]” ’961 Patent at 1:7-10. Thus, the “desired direction” would be the direction toward the space occupied or viewed by humans that the user intends to illuminate.

*Id.* Additionally, a person of ordinary skill in the art would have readily understood that the claimed light source of the ’961 patent would be designed to emit light in the direction toward the space used by humans that is intended to be illuminated—especially in order to retrofit or replace existing



incandescent, fluorescent, or halogen lighting. JX000057, Benya Decl. at ¶¶ 16-23; *see also* ¶¶ 14-15 and 24-28.

Moreover, in their requests for reexamination of the ‘961 patent, Defendants GE Lighting and OSRAM not once suggested that a person of ordinary skill in the art could not reasonably ascertain the meaning and scope of the claim term “desired directions.” Rather, they asserted multiple prior art references that they contended disclosed this very claim element. *See* JX000379 GE Lighting’s Request for Inter Partes Reexamination (excerpted); *see also* JX000382 (OSRAM Request for Ex Parte Reexamination (excerpted)). In addition, in evaluating Defendants’ prior art references and reexamination arguments, the USPTO never indicated that it did not understand the scope of “desired directions.” Further, in their preliminary invalidity contentions in this case, Defendants again have presented, without qualification, numerous references and arguments indicating that they understand this term. All of this is clear evidence that Defendants’ indefiniteness argument must fail. *See Sonix Tech. Co. v. Publications Int’l, Ltd.*, 844 F.3d 1370, 1379-80 (Fed. Cir. 2017) (reversing finding of indefiniteness and noting that no one involved in the reexamination proceedings or the accused infringer itself in presenting invalidity contentions had any apparent difficulty in determining the scope of the term “visually negligible”).

The crux of the remaining dispute regarding Term 4 is Defendants’ addition of modifying language requiring the panels be oriented angularity in more than one direction. Nothing in the claim language requires such a restriction, as the *Feit* Court previously held. JX000138, *Feit* Order (“the ‘panels’ do not need to be ‘oriented at different angles’”); *see also id.* at JX000141. Nothing in the specification requires that the panels be oriented in multiple angles and more than one direction. *Id.* (“nothing in the specification excludes an embodiment with two panels in parallel to emit light in a single direction, *i.e.*, oriented at the same angle”). For example, the specification

states that the light may be “transmitted in a diffuse or focused pattern through the enclosure 101”—and “in all directions except through the base 103, or in a manner to direct light in a specific direction.” JX000019, ’961 patent at 3:32-41. All directions, including a specific direction, is certainly not limiting and can include one direction. The specification also describes an embodiment where the panels may be “arranged in angular orientation with each other in order to cause light from the LED’s to be dispersed around a space to be illuminated”—but also states that the panels “can be oriented with respect to each other at *any* desired angle.” *Id.* at JX000019, 4:17-24 (emphasis added). Any designed angle is not limiting and can include the same angle. The specification thus supports panels oriented to direct light in a specific direction (*e.g.*, a focused pattern) or to direct light in multiple directions (*e.g.*, a diffuse pattern).

Defendants improperly tack on superfluous language to limit the plain meaning of the claim term. The Court should reject Defendants’ position and adopt Plaintiff’s position.

## 2. Plaintiff’s Answering Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Not indefinite. Plain and ordinary meaning: The panels on the heat sink are oriented to facilitate the emission of light in any desired (intended or predetermined) direction including the same direction.	Indefinite as to “desired directions”; or: Each of the panels on the heat sink is oriented angularly with respect to each other in more than one direction in order to cause light from the LEDs to be dispersed around the semiconductor source light source.

Claim 1 of the ’961 patent recites panels that are “*oriented* to facilitate emission of light ... *in desired directions around* the semiconductor light source.” The phrase “desired directions” is indefinite because it fails to provide any standard to determine if an accused product infringes and thus fails to “inform those skilled in the art about the scope of the invention with reasonable certainty.” *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). Indeed, the PTAB recently held that the similar phrase “desired effect” rendered a claim indefinite, and the

Federal Circuit salvaged the claim only by concluding that *the claim itself* stated what “effect” was “desired,” requiring no speculation to understand the phrase “desired effect,” rendering the phrase harmless surplusage. *See Pulse Elecs., Inc. v. U.D. Elec. Corp.*, 2021 WL 2735013, at \*4 (Fed. Cir. July 1, 2021) (“Because the ‘desired effect’ is objectively restricted to curvature ‘near or equal to 90 degrees,’ ... substitute claims 17, 20, 21 are not indefinite.”). Here, the claims provide no guidance as to the “desired directions,” and require one to speculate as to what “desired directions” might be.

The phrase “desired directions” does not even appear in the specification. In finding this term not indefinite, the court in *Feit* (Ex. 4 at 16) relied on *RevoLaze LLC v. J.C. Penney Co., Inc.* that included an *external standard* related to laser marking on material. No. 2:19-CV-00043-JRG, 2020 WL 697891, at \*10–11 (E.D. Tex. Feb. 11, 2020). As such, a POSA knew whether a design was “desired” based on “a function of the specified design, not the vagaries of any person’s opinion.” *Id.* More specifically, the laser marking claimed in *RevoLaze* could either conform or not conform to inputs provided by the user. *See id.* at \*10. The end result was *desired or not desired* if it *matched or did not match* a given input. Here, a POSA does not have such a standard for “desired” directions, nor can that POSA examine inputs or examples compared to a result to determine if that result is “desired.” The POSA has to guess or apply her subjective opinion—that is exactly where the Federal Circuit has found terms indefinite. *See Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2015) (*abrogated on other grounds in Nautilus*, 572 U.S. at 907) (term indefinite if “completely dependent on a person’s subjective opinion”).

The *Feit* court also relied on *Encap LLC v. Oldcastle Retail Inc.*, No. 11-c-808, 2012 WL 2339095 (E.D. Wis. June 19, 2012). JX000140. The *Encap* court determined that “desired amount” was not indefinite because, as in *Pulse*, the surrounding claim language included objective

frameworks for determining what amount is desired. Specifically, that “*application rates* of said solid carrier to said soil *is related to desired amount* of said PAM [polyacrylamide] to be metered to said soil.” *Encap*, 2012 WL 2339095, at \*5. The court used the example of a “1.5% PAM”—derived from a known, external norm—as the “desired amount,” and thus, the claimed “application rate” would be related to the “intended or predetermined amount.” *Id.* Here, there is no surrounding claim language or specification description that similarly relates to the “desired directions” facilitated by an orientation of a plurality of panels. There is thus no way to determine when a product infringes claim 1, because the term depends on subjective opinion. JX000411-12, ¶¶ 85–88.

Accordingly, this Court should assign no weight to treatment of this term in *Feit* because the *Feit* court’s decision to replace the word “desired” with “intended” or “predetermined” relies on *RevoLaze* and *Encap*. In contrast to these cases, there is no *standard* here by which a POSA could compare a potentially infringing product and know whether that product infringed.<sup>5</sup> Tellingly, in addition to citing no intrinsic evidence to establish the term is not indefinite, CAO’s own expert refused to opine on the definiteness of this term.<sup>6</sup>

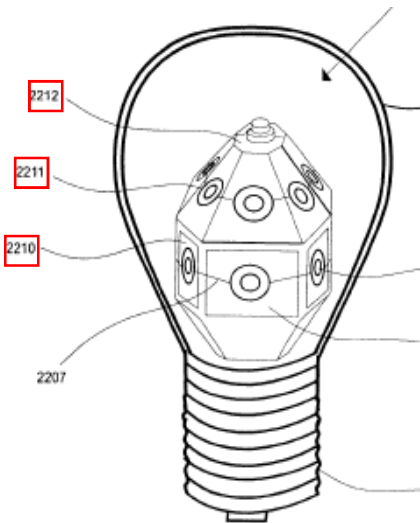
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<sup>5</sup> CAO’s reliance on *Sonix Tech. Co., Ltd. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370 (Fed. Cir. 2017) is misplaced. The panel in *Sonix*, held that “visually-negligible” was not indefinite in part because the patent “include[d] examples of visually-negligible indicators” that a POSA could “compare a potentially infringing product with the examples in the specification” to determine infringement.” *Id.* at 1379 (internal citations omitted). No such comparisons are available here.

<sup>6</sup> Relying on *Sonix*, CAO incorrectly asserts that Defendants’ mapping of prior art to this term in the initial invalidity contentions indicates it is not indefinite. However, unlike in *Sonix*, Defendants indicated this term is indefinite in their invalidity contentions. *See Sonix*, 844 F.3d at 1374.

Should the Court find this term is not indefinite, it should adopt Defendants’ construction. CAO’s construction completely eliminates Term 4 from the claim, because CAO’s construction adds nothing to the prior limitation. The prior limitation states: “said heat sink having a plurality of panels on it suitable for mounting semiconductor devices thereon.” Those panels must be oriented in some way such that orientation of each panel will necessarily facilitate the emission of light in desired directions (*i.e.*, more than one direction) around the semiconductor light source.

The context of the claim term, taken as a whole, illustrates that panels on the heat sink should be angled with respect to each other, to provide light in more than one direction. Four words in the claim term lead to this conclusion: the plural word “panels,” “oriented,” the plural word “desired directions,” and “around.” These words’ plain meanings illustrate that the claim contemplates *multiple panels* being *arranged or designed* to produce light in *multiple directions* around the light source. As



shown in Figure 2, the specification describes that the heat sink “has a plurality of heat sink faces 2210, 2211 and 2212 which are each generally planar and *are arranged in angular orientation with each other* in order to cause light from the LEDs to be dispersed around a space to be illuminated.” JX000019, ’961 Patent at 4:18–21 (emphasis added); *see also, id.*, 4:21–24, Fig. 2. Thus, to the extent this term is supported in the specification, the only embodiment that conforms to the claim includes panels oriented angularly with respect to other panels. CAO’s reliance on embodiments designed to “to direct light in a specific direction,” (CAO’s Opening Br. at 12–13), ignores that this particular claim requires plural “directions.” Taken as a whole, this particular claim term’s plain meaning demonstrates that the claimed panels must be angled to emit light in

multiple directions. JX000412-13, Karlicek Decl. ¶¶89–90. Moreover, CAO’s construction effectively deletes the phrase “*around* the semiconductor light source” from the claim, and broadens the term to cover “any direction.” That would violate the principle that courts “must give meaning to all the words in [the] claims.” *Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1557 (Fed. Cir. 1995).

### 3. Plaintiff’s Reply Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning: The panels on the heat sink are oriented to facilitate the emission of light in any desired (intended or predetermined) direction including the same direction.	Indefinite as to “desired directions”; or Each of the panels on the heat sink is oriented angularly with respect to each other in more than one direction in order to cause light from the LEDs to be dispersed around the semiconductor source light source.

Defendants fail to meet their burden that this claim term is indefinite. Setting aside *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014) (which states generally the law of indefiniteness, but otherwise is not germane to the present case), Defendants cite in the body of their brief exclusively to cases in which a court finds terms including “desired” to be *not* indefinite. The indefiniteness cases cited in Defendants’ brief are summarized in the table below:

Cited Case <sup>7</sup>	Term	Result
<i>Pulse Electronics</i>	Desired effect	Not indefinite
<i>RevoLaze</i>	Desired pattern	Not indefinite
<i>Encap</i>	Desired amount	Not indefinite
<i>Feit</i>	Desired directions	Not indefinite
<i>Datamize</i>	Aesthetically pleasing	Indefinite
	Desired	Not indefinite

In *Datamize*, the court found a claim to be indefinite for reciting an “aesthetically pleasing” look and feel without a way to objectively verify what was or was not aesthetically pleasing. That claim also included the term “desired”—which the court found was *not* indefinite. *Datamize*, 417 F.3d at 1356. The *Feit* court, exactly in line with *Datamize*, found that the term “desired” in claim 1 of the ‘961 patent is not indefinite; it simply means “intended” or “predetermined” and not “desirable” or “attractive.” JX000130-40, *Feit* Order. There is simply no support in the intrinsic evidence, or case law, that claim 1 of the ‘961 patent is indefinite.

This claim language has been reviewed multiple times in multiple fora with no one agreeing with Defendants. Defendants GE Lighting and OSRAM filed requests for reexamination of the ‘961 patent, asserting multiple prior art references that they contended disclosed this very claim element. *See* JX000379, GE Lighting’s Request for Inter Partes Reexamination (excerpted); *see also* JX000382, OSRAM Request for Ex Parte Reexamination (excerpted). Never once did

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<sup>7</sup> The citations for these cases are: *Pulse Elecs., Inc. v. U.D. Elec. Corp.*, 2021 WL 2735013 (Fed. Cir. July 1, 2021); *RevoLaze LLC v. J.C. Penney Co., Inc.*, No. 2:19-CV-00043-JRG, 2020 WL 697891, at \*10–11 (E.D. Tex. Feb. 11, 2020); *Encap LLC v. Oldcastle Retail Inc.*, No. 11-c-808, 2012 WL 2339095 (E.D. Wis. June 19, 2012); *CAO Lighting, Inc. v. Feit Electric Company, Inc.*, No. 20-cv-4926-AB (Ex. 4); *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342 (Fed. Cir. 2015).

these Defendants suggest this claim term was indefinite. Nor did the USPTO ever indicate that it did not understand the scope of “desired directions.” This patent also has been the subject of significant litigation with two claim construction orders issuing. JX000092, *Light Efficient Design* Order; JX000124, *Feit* Order. Neither of those orders expresses any misgiving about the definiteness of this claim language and the *Feit* Order expressly addresses this issue and decided against Defendants’ positions.

As to the plain, ordinary meaning of the term, “desired directions” is not a technical term and a jury can readily understand it. To the extent further guidance is needed, claim 1 recites “a semiconductor light source for emitting light to illuminate a space used by humans.” Still further,

As the specification emphasizes, “the invention relates to semiconductor light sources and illumination devices useful for providing visible light in order to partially or fully illuminate a space occupied or viewed by humans[.] ’961 Patent at 1:7-10. Thus, the “desired direction” would be the direction toward the space occupied or viewed by humans that the user intends to illuminate.

JX000140, *Feit* Order.

Defendants expressly acknowledge that their construction, requiring panels on the heat sink to be oriented angularly with respect to each other in more than one direction, relies on importing limitations into the claim found in a single embodiment in the specification. Opp’n at 8-9 (relying only on Figure 2 of the ’961 patent). Of course, this is wrong as a matter of law. *See, Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1330 (Fed. Cir. 2012) (“[I]t is ... not enough that the only embodiments, or all of the embodiments, contain a particular limitation to limit a claim term beyond its ordinary meaning.” (internal quotations and citations omitted)). Even where there is only a single embodiment in the specification, that embodiment does not provide justification for importing its features into the claim. *See, e.g., Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (“[T]his court has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that



embodiment.” (collecting cases)); *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004) (“[E]ven where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.”) (internal quotations and citations omitted).

Nothing in the specification, as the *Feit* court held, requires the *panels* to be at different angles. JX000138, *Feit* Order (“the ‘panels’ do not need to be ‘oriented at different angles’”); *see also id.* at JX000141. Nothing in the specification requires that the panels be oriented in multiple angles and more than one direction. The specification also describes an embodiment where the panels may be “arranged in angular orientation with each other in order to cause light from the LED’s to be dispersed around a space to be illuminated”—but also states that the panels “can be oriented with respect to each other at *any* desired angle.” JX000019, at 4:17-24 (emphasis added). Any desired angle can include being oriented at the same angle. The specification thus supports panels oriented to direct light in a specific direction (*e.g.*, a focused pattern) or to direct light in multiple directions (*e.g.*, a diffuse pattern), and to do so with panels oriented as desired—not required to look like Figure 2. Br. at 12-13.<sup>8</sup>

Again, Defendants arguments are legally impermissible, wrong on the intrinsic evidence, and contrary to the only court to rule on this issue. Defendants’ construction should be rejected.

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<sup>8</sup> Defendants assert that “CAO’s own expert refused to opine on the definiteness of this term.” Opp’n at 7-8. This statement is incorrect for at least three reasons: (1) the burden of proof on invalidity is with Defendants, by clear and convincing evidence, not on CAO Lighting; (2) the ultimate conclusion of indefiniteness is an issue of law for the court to decide (not an expert); and (3) CAO Lighting’s expert Benya opined on facts supporting definiteness, including that a person of ordinary skill in the art would have understood that the claimed light source would be designed to emit light in the direction toward the space used by humans that is intended to be illuminated—especially in order to retrofit or replace existing incandescent, fluorescent, or halogen lighting. JX000057-61, Benya Decl. at ¶¶ 16-23; *see also* ¶¶ 14-15 and 24-28.

#### 4. Defendants' Sur-Reply Position

Plaintiff's Proposed Construction	Defendants' Proposed Construction
Not indefinite. Plain and ordinary meaning: The panels on the heat sink are oriented to facilitate the emission of light in any desired (intended or predetermined) direction including the same direction.	Indefinite as to “desired directions”; or: Each of the panels on the heat sink is oriented angularly with respect to each other in more than one direction in order to cause light from the LEDs to be dispersed around the semiconductor source light source.

The phrase “desired directions” is indefinite. CAO asks the Court to jump to the conclusion of other courts and ignore those courts’ reasoning. In cases where similar terms were found not indefinite, the terms were mere substitutes for *external standards defined elsewhere in the patent*:

Cited Case <sup>9</sup>	Term	External Standard
<i>Sonix Tech.</i>	Visually-negligible	Compare examples in patent of “visually-negligible”
<i>Pulse Elecs.</i>	Desired effect	Restricted to curvature near or equal to 90 degrees
<i>RevoLaze</i>	Desired pattern	End result should mirror input provided by the user
<i>Encap</i>	Desired amount	External norm chosen by manufacturer: 1.5% PAM
<i>Datamize</i>	Aesthetically pleasing	<b>Held Invalid.</b> “Depend[s] on an undefined standard.”

Contrarily, the asserted patent here has *no external standard* by which a POSA may compare a product and know with reasonable certainty if it meets the limitation of “desired directions.” The Court should apply the reasoning of these cited cases and find this term indefinite.

Alternatively, the Court should find that the panels on the heat sink must be angled with respect to each other. Four words in the claim term lead to this conclusion: “panels,” “oriented,” “desired directions,” and “around.” These words’ plain meanings contemplate *multiple panels* being *arranged or designed* to produce light in *multiple directions* so as to *envelop* the light source.

#### E. TERM 5: “LED module”

<sup>9</sup> The citations for these cases are: *Sonix Tech. Co. v. Publ’ns Int’l Ltd.*, 844 F.3d 1370 (Fed. Cir. 2017); *Pulse Elecs., Inc. v. U.D. Elec. Corp.*, 2021 WL 2735013 (Fed. Cir. July 1, 2021); *RevoLaze LLC v. J.C. Penney Co.*, No. 2:19-CV-00043-JRG, 2020 WL 697891, at \*10–11 (E.D. Tex. Feb. 11, 2020); *Encap LLC v. Oldcastle Retail Inc.*, No. 11-c-808, 2012 WL 2339095 (E.D. Wis. June 19, 2012); *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2015) (*abrogated on other grounds in Nautilus v. Biosig Instr., Inc.*, 572 U.S. 898, 907 (2014)).

### 1. Plaintiff's Opening Position

Plaintiff's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning: A package containing at least one LED chip or LED array.	Operable self-contained device that includes at least one LED.

The term “LED module” is readily understood in view of the disclosures in the '961 patent and does not need to be construed. It is a “module” (a package) that contains at least one LED chip or LED array.

Again, the claim language itself is the starting point. Claim 1 (which is a part of claim 21) recites that at least one “semiconductor chip” is selected from the group consisting of light emitting diodes, light emitting diode arrays, laser chips, LED modules, laser modules, and VCSEL chips.” JX000018, '961 patent, claim 1. This group includes three semiconductor devices that are based on a LED semiconductor chip (light emitting diodes, light emitting diode arrays, and LED modules) and three components that utilize a laser semiconductor chip (laser chips, laser modules, and VCSEL chips). Original claim 17 further describes a “semiconductor chip module” as including a module heat sink, a semiconductor chip mounted to the module heat sink, and a cover covering the semiconductor chip. *Id.* Nothing in the claim language supports Defendants' position that the “LED module” must be “operable” or “self-contained”—nor is it clear what it even means in this context to be “operable” or “self-contained,” as Defendants propose. In fact, the inherent ambiguity of Defendants' position was highlighted in meet-and-confer discussions regarding this term where Plaintiff's counsel understood Defendants' counsel to suggest that their proposed construction of “LED module” could include a fully “operable” and “self-contained” commercially available *light bulb* for sale at Home Depot. Such a position cannot be correct, as the scope of the term “LED module” would subsume all of the other structural elements of the claims (*e.g.*, claim 21 (incorporating claims 1, 7, and 9) and original claim 17), and even if Plaintiff's counsel

misunderstood Defendants' position, there is no way to understand what adding "operable" or "self-contained" to the claim actually means.

Indeed, the specification supports Plaintiff's position and contradicts Defendants' attempt to add confusing verbiage to the claim language. The Background of the Invention of the '961 patent describes prior art LED modules as simply a package containing LEDs:

[I]n the prior art, LED's were typically *individually packaged in a module*, either with or without a focus dome on the module. Typical prior art LED modules lack high light intensity due to the size of the LED chips used. Further, arranging a sufficient number of prior art LED modules to generate high light intensity, such as use of a stack, lamp or array, took an excessive amount of physical space and created unmanageable amounts of heat.

JX000018, '961 patent at 1:22-29 (emphasis added).

The specification further describes several embodiments of a "LED module" as chip packages. Referring to Figure 2, the semiconductor device in the enclosure is arranged to accommodate high power surface LEDs such that "the light output from each *LED module* is greater than 40 milliwatts." JX000019, at 4:4-7 (emphasis added). The patent states that surface mount LEDs are "LED's mounted directly on a heat sink, or other surface, in contrast with traditional LED lamps which have ordinary electrical leads for wiring and must be separately held in place." JX000019, at 4:8-11. Figures 7a, 7b, 8a, and 8b depict several examples of surface mount packages including a single LED chip or LED array packages. JX000021, at 7:40-8:14. In each, the chip package includes at least one LED chip or LED array mounted on a heat sink or other surface. The chip packages may also include "connection blocks" to facilitate electrical connection of the chip(s). In some packages, a phosphor coating is applied to the LED chip or LED array in order to convert the single color light emitted from the chip or array into white light visible to humans to illuminate spaces used by humans. *Id.* Yet another example (Figure 9) describes a high power surface mount LED package on which the LED chip or LED array is mounted on a heat

sink, with an optional phosphor coating to convert the single color light to white light and further a “focus dome, lens, or cover” over the LED chip or array to focus the light in order to create a substantially coherent beam of usable light. JX000021, 8:15-37; Fig. 9. The embodiment depicted in Figure 9 is also reflected, at least in part, in original claim 17 as a “semiconductor chip module including a module heat sink, a semiconductor chip mounted to said module heat sink, and a cover covering said semiconductor chip.” These examples, described in the specification and shown in the figures, support the plain meaning of an LED module as simply a “package”—which could include a single chip package, a multiple chip package, an LED array package, or a high power surface mount LED package—containing at least one LED chip.

Plaintiff’s position is that no construction is needed; “LED module” has a plain and ordinary meaning. However, if a construction is necessary, the term “LED module” simply means a package containing at least one LED chip or LED array.

## 2. Defendants’ Answering Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning: A package containing at least one LED chip or LED array.	Operable self-contained device that includes at least one LED

The term “LED modules” is one member of the Markush group in claim 1: “said semiconductor chip being selected from the group consisting of light emitting diodes, light emitting diode arrays, laser chips, LED modules, laser modules, and VCSEL chips.” “A Markush group lists specified alternatives in a patent claim, typically in the form: a member selected from the group consisting of A, B, and C.” *Multilayer Stretch Cling Film Holdings, Inc. v. Berry Plastics Corp.*, 831 F.3d 1350, 1357 (Fed. Cir. 2016) (internal quotations and citations omitted). Markush groups are presumed to be closed to other alternatives not included in the group. *Id.*; see also *AFG Indus., Inc. v. Cardinal IG Co., Inc.*, 239 F.3d 1239, 1245 (Fed. Cir. 2001) (Markush groups

“exclude any elements, steps, or ingredients not specified in the claim”). The phrase “selected from the group consisting of” is a common Markush structure. *See The Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1372 (Fed. Cir. 2005); MPEP § 2117. “The presumption that a claim term is set off by the transitional phrase ‘consisting of’ is closed to unrecited elements is at least a century old and has been reaffirmed many times by our court and other courts.” *Multilayer*, 831 F.3d at 1358 & n.3 (collecting cases).

The intrinsic record identifies various types of LED modules relevant to the claimed invention. For example, the background of the invention identifies a removable lamp in a string of Christmas lights as an LED module. JX000018, '961 Patent at 1:32–36; JX000407, Karlicek Decl., ¶72. The specification also uses the phrases LED lamps and LED modules interchangeably. *See* JX000018, '961 Patent at 1:32–36; *see also* JX000018, 1:37–40; JX000407, Karlicek Decl., ¶73. The specification also references “high power LED packages” and uses that phrase interchangeably with “LED modules” having a certain power output. *Compare* JX000018, '961 Patent at 2:41 (“Fig. 9 depicts a high power LED package”) *with* JX000019, 4:6–7 (“‘High power’ LED’s means that the light output from each LED module is greater than about 40 milliwatts”).

Against this backdrop, a POSA would understand that the term “LED modules” refers to operable, self-contained devices that includes at least one LED. The specification does not define “module,” but plain meaning of the word “in electronics” is “a compact assembly functioning as a component of a larger unit.” JX000427-29; JX000407, Karlicek Decl., ¶74. Moreover, a POSA would understand that an “LED” is distinguishable from an “LED module” because an LED need not be operable. Figures 3a and 3c depict LEDs on various substrates. JX000019, '961 Patent at 2:4, 7; JX000408, Karlicek Decl., ¶75. But neither of these is operable since they do not include the necessary electrical components (*e.g.*, bond wires attaching the electrodes to the

semiconductor). In contrast, Figure 9 depicts a “high power LED package” (’961 patent at 2:41) (also referred to as an LED module with light output greater than about 40 milliwatts) with electrical connections for powering the device. JX000408, Karlicek Decl., ¶76. Every disclosed LED module is “self-contained” because it includes all of the semiconductor and electrical components needed to make the device run. *Id.*

CAO’s proposed definition is flawed for at least two reasons: (i) it improperly limits “LED modules” to packaged LEDs; and (ii) it is contrary to the plain language of the closed Markush group. As noted above, LED modules are not limited only to packaged LEDs in the specification. Rather, the specification also refers to standalone lamps and disconnectable Christmas tree light bulbs as LED modules. In fact, when CAO added claim 21 during reexamination of the ’961 patent, it cited as support for the amendment the statement in the ’961 patent that “[t]he semiconductor devices may be any semiconductor devices capable of emitting light.” JX000430, 3/24/14 Applicant Summary of Examiner Interview, and Amendment A in Response to Non-Final Action in Reex. No. 90/012,957 (citing 3:38-46) (CAO\_DE\_004982). This broad statement does not reference packaging at all.

Moreover, CAO’s proposed construction improperly introduces the phrases “LED chip,” which appears *nowhere* in the closed Markush group (“laser chip” does) and “LED array,” which is its own distinct member of the group, into the definition of “LED module.” Members of a Markush group are used singly. *Abbott Labs. v. Baxter Pharm. Prod., Inc.*, 334 F.3d 1274, 1281 (Fed. Cir. 2003). “If a patentee desires mixtures or combinations of the members of the Markush group, the patentee would need to add qualifying language while drafting the claim.” *Id.* CAO’s construction unnecessarily conflates and confuses the types of semiconductor chips.

Notably, the term “LED modules” does not impact the infringement claims because claim

21 does not select “LED modules” from the Markush group in claim 1. Instead, claim 21 states that “at least one semiconductor chip is a light emitting diode (LED) chip.” This choice of language was intentional. CAO told the Examiner during reexamination when adding claim 21 that “[t]he semiconductor device 106 of Fig. 1 can be replaced with *a high power LED chip*, where ‘high power’ is defined as ‘the light output . . . is greater than 40 milliwatts.’ JX0003450 (quoting in part 4:4-15; *emph. added*). Importantly, CAO replaced the phrase in the specification “from each LED module” with an ellipsis to suggest there was support in the specification for an “LED chip” that emits light greater than 40 mW. CAO’s choice to characterize claim 21 as directed to high powered LED chips eliminates “LED modules” from the scope of the claim. *Abbott*, 334 F.3d at 1281. Thus, this dispute relates only to Defendants’ written description and enablement defenses.

### 3. Plaintiff’s Reply Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning: A package containing at least one LED chip or LED array.	Operable self-contained device that includes at least one LED.

This construction issue is not ripe for judicial determination. Defendants admit that “the term ‘LED modules’ does not impact the infringement claims . . .” Opp’n at 11. Instead, “this dispute relates only to Defendants’ written description and enablement defenses.” Opp’n at 12. Importantly, Defendants *have no* written description and enablement defenses based on this claim term. Defendants served their Initial Invalidity Contentions on July 27, 2021. JX000456. Despite six pages of invalidity contentions under 35 U.S.C. § 112, including a two-page chart of § 112 issues, there is no mention of the LED module. *Id.* at JX000490-95. There are no § 112 invalidity contentions for the instant claim term. CAO Lighting also served an invalidity contention interrogatory on each defendant. None of their responses, despite supplementation as recently as



two weeks ago, describe a § 112 invalidity defense involving this claim term. JX000500-677. Defendants have not identified any concrete, justiciable issue for the Court to resolve.

Worse, Defendants proposed construction of “LED module” is based solely on the Declaration of their expert Dr. Karlicek and incorporates phrases not found in claim language or specification. Defendants’ proposed construction does not even adopt their own proposed “plain meaning” of module (“a compact assembly functioning as a component of a larger unit”). Opp’n at 10. Defendants recite this so-called “plain meaning,” then propose a construction that is made up entirely by their expert (“operable” and “self-contained”) that applies neither the descriptions in the specification nor the admitted plain meaning. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996) (“[E]xpert testimony in particular, . . . may not be used to vary or contradict the claim language.”).

The term “LED module” is readily understood in view of the disclosures in the ’961 patent. It is a “module” (a package) that contains at least one LED chip or LED array. Br. at 13-16. Defendants also object, oddly, to the inclusion of the word “chip” in the construction. Yet, elsewhere in their brief, Defendants repeatedly assert that the specification of the ’961 patent uses the phrases “LED” and “LED chip” interchangeably, suggesting that there is no difference between these terms. Opp’n at 15-16, 19. Defendants go so far as to argue that “[i]f ‘LED chip’ and ‘LED’ have different meanings, then every asserted claim is invalid for improper dependency.” *Id.* at 16. Regardless of the incorrectness of Defendants’ positions, Defendants never explain why, given their assertions that LED and LED chip must mean the same thing, it is improper for this construction to use the term “LED chip” and must use the term “LED.”

The Court, however, need only look to the claim language itself, which unambiguously answers the dispute: the claim recites a “semiconductor chip” that either includes an LED as the

“semiconductor chip” (these are “light emitting diodes, light emitting diode arrays, LED modules”) or the semiconductor chip does not require an LED chip (these are “laser chips, laser modules, and VCSEL chips.”). JX000018, ’961 patent at cl. 1. The word “chip” comes from the claim itself—every one of the listed options is or includes a “semiconductor *chip*.”

CAO Lighting’s position, un rebutted by coherent argument, is that no construction is needed; “LED module” has a plain and ordinary meaning. However, if a construction is necessary, the term “LED module” simply means a package containing at least one LED chip or LED array.<sup>10</sup>

#### 4. Defendants’ Sur-Reply Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning: A package containing at least one LED chip or LED array.	Operable self-contained device that includes at least one LED

CAO’s argument that Defendants’ construction is “based solely” on its expert, Dr. Karlicek (CAO’s Reply Br. at 12), is simply incorrect. Defendants’ position relies instead on the claim language, specification and prosecution history, as does Dr. Karlicek’s opinion in any event. Defendants’ Answering Br. at 9-12; JX000406-08, ¶¶ 69-76 (discussing and analyzing uses of phrase “LED module” in the specification). In contrast, CAO completely ignores the intrinsic record supporting Defendants’ position and improperly limits LED modules to LEDs in a package despite no support for such a construction in the intrinsic or extrinsic record.

Contrary to CAO’s assertion, Defendants timely disclosed their argument that the specification of the ’961 patent fails to enable or provide adequate written description for the term “said at least one semiconductor chip is a light emitting diode (LED) chip configured to output light at greater than about 40 milliwatts.” See JX000496 (Defendants’ Joint Initial Invalidity

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<sup>10</sup> An “LED array” means simply a plurality of LEDs arranged in a pattern. JX0000122.

Contentions). The construction of the term “LED modules” directly relates to that invalidity argument. Therefore, the term is ripe for construction by the Court.

CAO fails to respond to Defendants’ argument that the inclusion of the words “LED chip” (which is not included in the closed Markush group), and “LED array” (which is its own distinct member of the Markush group), into the definition of “LED module” is legally improper because members of a Markush group are required to be used singly. *See* Defendants’ Answering Br. at 11. As discussed in Defendants’ Answering Brief, it is improper and confusing to conflate the members of the Markush group as in CAO’s proposed construction. *Id.*

CAO also does not address the critical inclusion of the words “operable” and “self-contained device” in Defendants’ proposed construction. A POSA would understand that the term “LED modules” refers to operable, self-contained devices that includes at least one LED. The specification makes clear that an “LED module” contains electronics that allow it to be “operable” as compared to an “LED” which, according to the descriptions in the specification, does not itself include the electronics that allow the LED to be “operable.” *See* Defendants’ Answering Br. at 10. The inclusion of the words “self-contained” in the construction are also appropriate in light of the specification, which refers to standalone lamps and disconnectable Christmas tree light bulbs as LED modules. CAO provides no explanation why the inclusion of these words is inappropriate in the construction.

**F. TERM 6: “a first and second reflective layers ... serving to reflect light emitted by said active layer”**

**1. Plaintiff’s Opening Position**

<b>Plaintiff’s Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
The first and second reflective layers are distinct from each other and reflect light emitted by the active layer.	Distinct layers of material that are intended to reflect more light emitted by said active layer than is absorbed by and transmitted through the layers of material.

This claim term was considered by the California District Court in *Feit*, and the Court found that the first and second reflective layers are distinct from one another. JX000145, *Feit* Order, (noting “the intrinsic evidence treats the two ‘reflective layers’ as distinct [and] Claim 8 specifies that the ‘first and second reflective layers’ are ‘located on opposite sides of said active layer.’”). In other words, as the *Feit* court reasoned, “[i]n order for the reflective layers to be on opposite sides of the active layer and reflect light between them, the reflective layers must be distinct layers.” *Id.* Plaintiff agrees: the first and second reflective layers are distinct layers from each other. And, once again, there is no good reason for this Court to reject the *Feit* Court’s ruling. *See Linear*, 2007 WL 6126455, at \*2.

Defendants, however, attempt to add qualifying language as to the amount of light reflected by the reflective layers—specifically asserting that the reflective lights must “reflect more light emitted by said active layer than is absorbed by and transmitted through the layers of material.” Nothing in the intrinsic record supports Defendants’ attempts to limit the claim to a specific amount of reflectivity or otherwise qualify the claim language in this manner. The claim language simply and plainly states that the reflective layers “reflect light emitted by said active layer.” There is no redefinition or disclaimer in the specification or elsewhere in the intrinsic record. The ’961 patent also does not mention or discuss absorption by the reflective layers at all, and there is no discussion of how much reflection is required. Simply put, this additional qualifying language is without any support in the intrinsic record. Defendants’ position to qualify the plain language of the claim is unsupported.

In fact, a similar attempt to restrict the light reflected by the reflective layers was rejected in the *Feit* case. There, the California District Court rejected *Feit*’s proposed construction that the reflective layers must “reflect *the majority of* light emitted by said active layer.” JX000145, *Feit*

Order. The Court noted that “Claim 8 requires that the ‘reflective layers’ only ‘serv[e] to reflect light emitted by said active layer.’” *Id.* Citing the specification disclosures, the Court concluded that “the intrinsic evidence does not describe reflectivity in terms of the amount of light reflected but rather in terms of achieving the necessary results.” *Id.*

Defendants’ attempts to add words to the claim—words that cannot even be found in the intrinsic record—should be rejected. This Court should find that the claim term is entitled to its plain and ordinary meaning, without the limitations that Defendants seek to add.

## 2. Defendants’ Answering Brief

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
The first and second reflective layers are distinct layers from each other and reflect light emitted by the active layer	Distinct layers of material that are intended to reflect more light emitted by said active layer than is absorbed by and transmitted through the layers of material

While the parties agree that the first and second reflective layers must be distinct from each other and must reflect light emitted by the active layer, they dispute (i) the meaning of the phrase “serving to” in this limitation and (ii) *how* to determine whether a layer is “reflective.” Like other phrases discussed above, CAO’s proposed construction of the above-quoted language is erroneous because its construction is so broad it renders the limitation meaningless.

CAO seeks to expand the scope of this claim term so that any layer that does not completely absorb all light reaching it from the active layer would be considered a “reflective layer.” For example, it alleges in its infringement contentions that a thin layer of indium-tin-oxide (ITO) designed to *transmit* light and/or gallium nitride (GaN) or aluminum nitride (AlN) molecules that interface with the substrate are each “reflective layers” merely because they reflect some light,<sup>11</sup>

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<sup>11</sup> Other than applying a label to these layers, CAO has not provided any actual evidence that these layers reflect any appreciable amount of light in its infringement contentions.

even though a POSA designing an LED package would not consider such materials to be reflective and so would not select such materials if their purpose was to reflect light. JX000404, ¶¶64. Indeed, under CAO’s proposed construction any layer could be labeled a “reflective layer.”<sup>12</sup>

When light hits a material, three things can happen: light can be reflected by, absorbed by and/or transmitted through the material. Ex. 10 ¶¶38. *Every* material reflects at least some light. *Id.*, ¶¶61. Even the darkest material ever made, only recently created in an MIT laboratory, still reflects some light. *Id.*, ¶¶40. *Every* material also absorbs at least some light. *Id.*, ¶¶38-39. To have any meaning, therefore, “reflective layer” must mean something different than reflecting literally any light, otherwise there would be no point to specifying that the layer is “reflective.” *Exxon*, 64 F.3d at 1557 (courts “must give meaning to all the words in [the] claims”).

CAO’s construction is also improper under the doctrine of claim differentiation and the principle that a dependent claim must be narrower than its parent claim. There is a presumption that “different words or phrases used in separate claims . . . indicate that the claims have different meanings and scope.” *Karlin Tech. Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971–72 (Fed. Cir. 1999). Here, claim 7 already covers various layers (all of which reflect some quantity of light) disposed on opposite sides of the active layer (*e.g.*, “said active layer lies between cladding layers”). JX000403-04, ¶¶62. The language in dispute—“a first and a second reflective layers . . . serving to reflect light emitted by said active layer”—must therefore mean more than two “distinct layers” that receive, and therefore “reflect [at least some] light emitted by the active layer.” Otherwise, claim 8 would not narrow—indeed it would add nothing to—claim 7.

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<sup>12</sup> Even the court in *Feit*, whose decision CAO urges this Court to rubber stamp, acknowledged that a reflective layer needs to reflect more than “some negligible amount of light.” JX000145 (“This is not to say that a layer may be a ‘reflective layer’ simply by reflecting some negligible amount of light; rather a POSA would understand how much light the ‘reflective layers’ must reflect by reviewing the intrinsic evidence.”).

CAO also does not propose any plain meaning of the phrase “serving to.” Instead, it improperly ignores the phrase. In the phrase “serving to reflect light,” the plain meaning of the word “serve” is “to furnish or supply with something needed or desired.” JX000688. While the Federal Circuit has not specifically construed the phrase “serving to” before, it has noted in an analogous context that “the phrase ‘adapted to’ is frequently used to mean ‘made to,’ ‘designed to,’ or ‘configured to,’ but it can also be used in a broader sense to mean ‘capable of’ or ‘suitable for.’” *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F. 3d 1335, 1349 (Fed. Cir. 2012). *See also Sta-Rite Indus., LLC v. IIT Corp.*, 682 F.Supp.2d 738, 753 (E.D. Tex. 2010) (construing “adapted to,” in context, to mean “designed or configured to,” not “having the capacity to”). As in *Aspex*, the term “serving to” in claim 8 requires the selection of material specifically intended to reflect light within the claimed “semiconductor chip”—as opposed to every other material in the chip, which will incidentally reflect some light but does not “serv[e]” that purpose. In each case in the intrinsic record where the word “reflective” is used, the material is intended to reflect light, *e.g.*, “to provide useful illumination” and “provide[] more efficient light output.”

Consistent with that understanding, the word “reflective” is applied to materials which achieve specific results. For example, the specification discloses the use of “heat conductive adhesives” which may be “light reflective as desired.” JX0000123, ’961 Patent at 9:10–15. Also, the specification discloses surface mount packaged LEDs that include a well containing the LED that has “reflective sides” to “reflect[] [light emitted] out of the well in order to provide useful illumination and to minimize heat buildup.” *Id.* at 7:41–47; Fig. 7a. “Reflection of light by the well and the adhesive provides more efficient light output than would otherwise be achieved.” *Id.* at 9:29–31. The specification also discloses the use of aluminum nitride/ aluminum gallium nitride reflective layers to achieve the lasing effect in a VCSEL. *Id.* at 5:38–44. Likewise, the intrinsic

record states that “[e]xamples of light reflective adhesives . . . include silver and aluminum based epoxy.” *Id.* at 9:16–17. While the specification does not disclose materials that can be used to make the well in a surface mounted package reflective, a POSA would understand that materials such as aluminum or silver can (and were) used to reflect light out of the well. A POSA would readily recognize that silver and aluminum reflect more light than is absorbed by or transmitted through the material. JX000405-06, ¶¶67-68. In each of the three references to “reflective” in the specification, a person skilled in the art would understand that the material reflects more light than is absorbed or transmitted. JX000404-06, ¶¶65-67. Thus, the Court should construe a “reflective layer” as reflecting more light than it absorbs and transmits.

Finally, the only disclosure in the patent of a semiconductor having two reflective layers is in a type of chip called a VCSEL. *See* JX000020, ’961 Patent at 5:30–50; 6:1–10; Figs. 3f, 3h. A VCSEL—which is not in any of the accused products—is a type of laser that includes two reflective layers. JX000404-05, ¶65. The specification states the purpose of the two reflective layers thusly: “[l]ight reflected from the active layer reflects between the two reflective layers until it reaches an appropriate energy level and then lases, emitting a laser beam of light.” JX000020, ’961 Patent at 5:44–47. There is no disclosure in the intrinsic record of any non-laser LED having two reflective layers as required by claim 8. *Id.* It would not make sense to have reflective layers on both sides of the active layer in a typical LED device used today where the goal is to emit the maximum amount of light from the LED as compared to a laser which must emit the light as a coherent beam. JX000404, ¶65.

### 3. Plaintiff’s Reply Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
The first and second reflective layers are distinct from each other and reflect light emitted by the active layer.	Distinct layers of material that are intended to reflect more light emitted by said active layer



	than is absorbed by and transmitted through the layers of material.
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Defendants essentially ignore, and in any event find no fault with, the claim construction opinion from the Central District of California in the *Feit* case just a few months ago that rejected the same arguments raised by Defendants and adopted the construction that is proposed by CAO Lighting here. JX000143-45, *Feit* Order; Br. at 16-17. There being no defect in the *Feit* Court’s logic, this Court should adopt its claim construction for this term.

Defendants betray their results-oriented approach by expressly urging the Court to craft a claim construction that would, according to Defendants, exclude CAO’s infringement position. Opp’n at 12-13. It is hornbook law, however, that courts should not construe the terms in patent claims by reference to the accused products. *See, e.g., NeoMagic Corp. v. Trident Microsys., Inc.*, 287 F.3d 1062, 1074 (Fed. Cir. 2002) (“It is well settled that claims may not be construed by reference to the accused device.”).

There is no doubt that claim 8 narrows the scope of claim 7, and Defendants’ claim differentiation argument is wrong. First, claim differentiation cannot overcome the clear language of the claim. *See, e.g., Mycogen Plant Science v. Monsanto Co.*, 243 F.3d 1316, 1329, 58 U.S.P.Q.2d 1030 (Fed. Cir. 2001) (“The doctrine of claim differentiation cannot be used to overcome the plain language of the claims themselves.”). Second, Defendants oversimplify for the purpose of creating claim differentiation—arguing, based solely on their expert’s declaration, that “claim 7 already covers various layers (all of which reflect some quantity of light).” Opp’n at 13. Claim 7 recites specific layers, which include a buffer layer, first and second cladding layers, an active layer, and a contact layer. JX000023, ’961 patent at cl. 7. And claim 8 further recites reflective layers that are located on opposite sides of the active layer and “serving to reflect light emitted by said active layer.” *Id.* at cl. 8. CAO Lighting’s infringement contentions specifically

illustrate how each of these layers is present in the accused products—Defendants seem to understand those contentions. *See* Opp’n at 12. Defendants’ complaint about these contentions is not that there is no difference between claims 7 and 8 (there is, and Defendants recognize it). Rather, their complaint is that they do not want the layers identified in the contentions to be “reflective layers” even though they meet the requirements of claim 8. But courts do not re-write claim language based on accused products. *NeoMagic Corp.*, 287 F.3d at 1074 (“It is well settled that claims may not be construed by reference to the accused device.”).

Not content with the clear language of claim 8, Defendants next focus on the meaning of “serving to” in the claim—but then propose a construction that ignores their own extrinsic evidence. Defendants assert that the plain meaning of “serve” is “to furnish or supply with something needed or desired.” Opp’n at 14. But Defendants do not even use this plain meaning. Instead, they pivot to a construction (“intended to reflect more light . . . than is absorbed by and transmitted through the layers of material”) that finds support exclusively in the Declaration of their expert. Defendants’ position is further compromised by their citation to Federal Circuit cases that construe a *different* claim term (“adapted to”) and use this different term to incorporate “intent” into claim 8. From there, Defendants review three different examples of “reflective” materials used in three different applications in the specification (only one of which is a layer in a chip). Finally, Defendants’ expert reviews the three examples and creates, with no citation or support, the added limitation that the reflective layer reflects more light than it absorbs and transmits. Opp’n at 14-15; JX000404-06, Karlicek Decl. at ¶¶ 65-68. This is not construing the claims in light of the intrinsic evidence—instead this is the impermissible extrinsic reinterpretation of extraneous details from the specification being incorporated into the claims. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576 at 1584-84 (Fed. Cir. 1996) (reversing judgment as a matter of

law where trial court impermissibly relied on expert testimony “on the *proper construction* of a disputed claim term.”)

The Court should follow the sound logic of the *Feit* Court and not follow Defendants to error.

#### 4. Defendants’ Sur-Reply Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
The first and second reflective layers are distinct layers from each other and reflect light emitted by the active layer	Distinct layers of material that are intended to reflect more light emitted by said active layer than is absorbed by and transmitted through the layers of material

As with other terms, CAO incorrectly states that Defendants’ construction is “support[ed] exclusively” by their expert. CAO’s Reply Br. at 15. On this and other issues, CAO’s refusal to address the full claim language and other elements of the intrinsic record is the fundamental problem with CAO’s theory of the case. CAO continues to give no meaning to the words “serving to.” In contrast, Defendants’ dictionary definition (defining “serve” to include “something needed or desired”) supports their proposed construction because the subject layers must be intended to reflect light in order to achieve the desired result. Only Defendants’ proposal gives meaning to all the words in the claims.

There is no dispute that the only disclosure in the specification of a semiconductor containing two reflective layers is in a VCSEL, a type of laser not present in any accused product. Defendants’ Answering Br. at 15; JX000404-05, ¶¶ 65-67. This is not surprising since it would not make any sense to have two reflective layers in the non-laser, top emitting LEDs used in the accused products. JX000404-05, ¶ 65. Defendants’ proposed construction arises directly from the intrinsic record. To achieve the desired reflection, each exemplary reflective material disclosed in the specification is intended to reflect more light than it absorbs or transmits. JX000404-06, ¶¶ 65-68.

CAO's proposed construction blurs any difference in the scope of claims 7 and 8. In response, CAO points out that the language in claim 8 requires two reflective layers while claim 7 does not. CAO's Reply Br. at 14. But CAO ignores that every layer set forth in claim 7 (*e.g.*, the buffer layer and cladding layers on either side of the active layer) would be considered a reflective layer under its construction, inappropriately rendering the reference to "reflective" layers meaningless surplusage. That is because CAO does not and cannot dispute that every material reflects and absorbs at least some light. CAO offers no argument why the "significant" presumption in favor of claim differentiation does not apply here. *See, e.g., Tandon Corp. v. U.S. Int'l Trade Comm'n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987). CAO argues that "claim differentiation cannot overcome the clear language of the claim." CAO's Reply Br. at 14 (citing *Mycogen Plant Science v. Monsanto Co.*, 243 F.3d 1316, 1329 (Fed. Cir. 2001)). But unlike in *Mycogen*, where the claims found to have equivalent scope were both independent claims and the specification used the different claim language interchangeably in the specification (243 F.3d at 1329-30), here claim 8 depends from claim 7 and there is no discussion in the specification treating, *e.g.*, the cladding layers of claim 7 as reflective layers. Moreover, the written description discloses both VCSEL semiconductors covered by claim 8 that include reflective layers (Figs. 3f and 3h) and non-laser semiconductors covered by claim 7 but that do not include the reflective layers in claim 8 (Figs. 3b and 3d). The specification thus confirms that claims 7 and 8 have different scope.

Absent Defendants' proposed construction, the jury will have no basis to evaluate whether an accused product (or product in a prior art product or publication) includes an LED containing the two required reflective layers. Instead, if CAO's construction is adopted, the experts will necessarily need to construe the construction to determine whether the alleged layer of material actually reflects sufficient light to be considered a "reflective layer."

Finally, CAO asserts that Defendants improperly requested a construction that references the accused products. CAO's Reply Br. at 13. That is incorrect. Nowhere in Defendants' proposed construction is any reference to any accused product. Defendants instead properly provided the Court with knowledge of what CAO accuses as reflective layers as meaningful context for the Court's construction. *Every Penny Counts, Inc. v. Am. Express Co.*, 563 F.3d 1378, 1383 (Fed. Cir. 2009) (A trial court's "'knowledge of [the accused] product or process provides meaningful context for the first step of the infringement analysis, claim construction.'" (quoting *Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1331 (Fed. Cir. 2006))).

**G. TERM 7: "a light emitting diode (LED) chip configured to output light at greater than about 40 milliwatts"**

**1. Plaintiff's Opening Position**

<b>Plaintiff's Proposed Construction</b>	<b>Defendants' Proposed Construction</b>
Plain and ordinary meaning: At least one LED chip is capable of emitting light greater than about 40 milliwatts.	An LED that alone is capable of emitting light having power greater than about 40mW.

This term reflects the classic "it says what it says." No construction is necessary.

Defendants' proposed construction is both inaccurate and unhelpful. First, Defendants' proposed construction removes the word "chip" from the claim language. But the claim language expressly recites "a lighting emitting diode (LED) *chip*" that is configured to output light at greater than about 40 milliwatts.

Second, Defendants tack on the modifier "alone" to the claim language. The word "alone" is not used in the claim language; nor is it used in the specification. It is not disputed that the LED chip itself may need something else, such as a power source, to ultimately function. Adding the word "alone" only creates ambiguity.

The claim language is clear. No construction is necessary. Defendants' proposed construction should be rejected.

## 2. Defendants' Answering Position

Plaintiff's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning: at least one LED chip is capable of emitting light greater than about 40 milliwatts	An LED that alone is capable of emitting light having power greater than about 40 mW

The parties' proposed constructions differ in two respects. First, consistent with the closed Markush group language in claim 1 and the interchangeable use of the terms "LED" and "LED chip" in the specification, Defendants' proposal properly limits the phrase "LED chip" to "LED." Second, the parties dispute whether the LED must be capable of emitting light with power greater than about 40 mW by itself or whether multiple LEDs or features within an LED module, lamp, etc. can be used to achieve the 40 mW requirement.

As noted in Term 5 (LED module), claim 1 includes a closed Markush group that includes the phrase "light emitting diode" but not "LED chip." That said, the specification uses the phrases "LED" and "LED chip" interchangeably. For example, Figure 3a is referred to as depicting both "an LED with an insulating substrate," (JX000018, '961 Patent at 2:4) and "an LED chip with an insulating substrate," (*id.* at 4:28). This is consistent with how a POSA would understand the terms "LED chip" and "LED." JX000408-09, ¶¶78-79. If "LED chip" and "LED" have different meanings, then every asserted claim is invalid for improper dependency. *See* 35 U.S.C. §112, ¶ 4.

Defendants propose that each individual LED must itself emit light having power greater than 40 mW because that is precisely what CAO itself argued in order to secure patentability during reexamination.<sup>13</sup> Specifically, a reference at issue in the reexamination, Begemann, discloses

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<sup>13</sup> Defendants do not argue that the fact that a power source is necessary to drive electrical current through an LED has any relevance to its proposed construction. Rather, Defendants' proposed construction is intended to preclude CAO from arguing that multiple LEDs can be used to achieve the claimed 40 mW limitation or that features within an LED module can be used to achieve the 40 mW requirement.

LEDs that CAO argued without support were one-third as powerful as the LEDs being claimed. Ex. 12 at 33. CAO argued that the patent taught a “single ‘LED chip’” that produces a light output of greater than 40 milliwatts and that therefore each LED claimed by claim 18 produced three times the amount the light output of the LEDs of Begemann. *Id.* (quoting in part 4:4-15; emphasis added). The Examiner explicitly relied on this argument when allowing the claims:

Proposed new claim 21, from which all of the other proposed new claims depend directly or indirectly, includes a feature requiring the semiconductor chip to be “a light emitting diode (LED) chip **configured to output light at greater than about 40 milliwatts**”, which Patent Owner argues is not explicitly taught or suggested by any reference currently relied on to reject the claims (Remarks dated 03/24/2014, p. 33, last ¶). For this reason, the claims are found patentable.

JX000711, 6/18,14 Office Action. (emphasis in original). Based on that clear and unequivocal disclaimer, the Court should reject CAO’s attempt to rewrite the claims to allow it to argue that a product which contains multiple LEDs that individually have power less than 40 mW may nonetheless infringe because they collectively produce light having power greater than 40 mW.<sup>14</sup>

Moreover, by not limiting the claim to require that an individual LED itself be capable of emitting light having greater than 40 mW output, CAO seeks to expand the claim to encompass LED modules or arrays, which it specifically did not select when drafting claim 21. *See Abbott*, 334 F.3d at 1281 (stating that “members of the Markush group are used singly” and “without expressly indicating the selection of multiple members of a Markush grouping, a patentee does not claim anything other than the plain reading of the closed claim language.”) As discussed above, both parties agree that an LED module can contain one or more LEDs. CAO’s proposed construction therefore attempts to rewrite the claims to include more than one LED and include LED modules or arrays.

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<sup>14</sup> Further, CAO’s proposed construction makes no sense linguistically. Placing its proposed construction in the context of claim 21 reads as follows: “said at least one semiconductor chip is at least one LED chip is capable of emitting light greater than about 40 mW.”

Finally, by equating an LED with an LED module, CAO is undoubtedly seeking to expand the scope of what is an LED to preserve its validity under § 112. The specification discloses only the use of *LED* modules having light output greater than 40 mW. JX000019, '961 Patent at 4:4–12. The specification does not disclose an LED (or LED chip) that outputs light greater than 40 mW.

### 3. Plaintiff's Reply Position

Plaintiff's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning: At least one LED chip is capable of emitting light greater than about 40 milliwatts.	An LED that alone is capable of emitting light having power greater than about 40mW.

This term “says what it says.” No construction is necessary. No argument by Defendants supports changing what this claim term says on its own.

First, Defendants' proposal writes the word “chip” out of the claim. Defendants offer no reason to purposefully eliminate a word that is in the claim term being construed. Further, as noted earlier, Defendants also argue that “the specification uses the phrases ‘LED’ and ‘LED chip’ interchangeably.” Opp'n at 16. Defendants go on, impermissibly in a *Markman* brief, to argue that “[i]f ‘LED chip’ and ‘LED’ have different meanings, then every asserted claim is invalid for improper dependency.” *Id.* Why, then, do Defendants insist on removing the word “chip” from the claim? The claim language should simply speak for itself.

Turning to Defendants' addition of the word “alone” to the claims, Defendants next assert that this word is necessary to stop “CAO's attempt to rewrite the claims to allow it to argue that a product which contains multiple LEDs that individually have power less than 40 mW may nonetheless infringe because they collectively produce light having power greater than 40 mW.” Neither the claim language nor CAO Lighting's proposed construction makes any such attempt. Rather, CAO Lighting's proposal highlights that only one LED chip need meet the 40 mW requirement for the claim language to be met.



Defendants proposed construction only adds confusion and its supporting arguments do no better. The Court should reject them.

#### 4. Defendants' Sur-Reply Position

<b>Plaintiff's Proposed Construction</b>	<b>Defendants' Proposed Construction</b>
Plain and ordinary meaning: at least one LED chip is capable of emitting light greater than about 40 milliwatts	An LED that alone is capable of emitting light having power greater than about 40 mW

In its Reply, CAO concedes that the term “a light emitting diode (LED) chip configured to output light at greater than about 40 milliwatts,” requires that “only one chip need meet the 40 mW requirement for the claim language to be met.” CAO’s Reply Br. at 16. It is therefore confusing why CAO continues to object to Defendants’ inclusion of the word “alone” in the construction of this term. Defendants’ inclusion of the word “alone” in its proposed construction captures what CAO has conceded; that in order to meet this limitation, a single LED “alone” must be capable of emitting light at power greater than about 40 mW, not multiple LEDs acting in conjunction. Including the word “alone” in the construction eliminates confusion that would be created by CAO’s proposed construction. CAO’s construction would add more confusion because it injects the words “at least one” into the construction and could be misread as meaning multiple LEDs acting together to emit light at greater than about 40 mW.

CAO also fails to respond to Defendants’ argument regarding why “LED” is more appropriate in the construction compared to “LED chip.” There apparently is no dispute that the specification uses “LED chip” and “LED” interchangeably. Nor can there be because claim 21 requires “said at least one semiconductor chip,” to be selected from the closed Markush group of claim 1, which includes an “LED” and does not include “LED chip.” Therefore, “LED chip” in claim 21 must mean “LED” because it cannot mean any of the other “semiconductor chips” that are included in the closed Markush group of claim 1.

**H. TERM 8: “Said AC/DC converter is positioned in said base”****1. Plaintiff’s Opening Position**

<b>Plaintiff’s Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
Plain and ordinary meaning: The AC/DC converter is positioned in the base but does not need to be entirely in the base.	The AC/DC converter is contained inside the base

Like previous Terms 2 and 3, the only issue for the Court to decide is whether the word “in” needs to be construed, and, if so, if it should be narrowed as Defendants propose. As discussed above, the word “in” generally, as well as in the context of the ’961 patent, has a plain and ordinary meaning that encompasses both partially and entirely in.

As with previous claim terms, this Court should reject Defendants’ attempts to restrict the claim to less than its plain and ordinary meaning. Plaintiffs believe no construction is necessary; if necessary, however, the term “in” should be construed (as above) as encompassing an AC/DC converter that may be partially or entirely in the base.

**2. Defendants’ Answering Brief**

<b>Plaintiff’s Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
Plain and ordinary meaning: The AC/DC converter is positioned in the base but does not need to be entirely within the base	The AC/DC converter is contained inside the base

For this claim limitation, CAO merely refers back to its arguments for the heat sink limitations (Terms 2 and 3) and again asks this Court to focus solely on the word “in.” CAO’s reliance on the heat sink arguments fails for similar reasons.

Specifically, CAO again errs when it contends the only issue is the meaning of “in” in a vacuum. As with the heat sink limitations, there are two phrases that define the location of the AC/DC converter. Claim 32 states: “said AC/DC converter is *positioned* outside said interior volume.” Claim 33 depends from claim 32 and further requires: “said AC/DC converter is

*positioned* in said base.” These multiple limitations reflect a specific location where the AC/DC converter is “positioned”—inside the base.

CAO also does not address the patent specification, which supports Defendants’ construction. The specification nominally states that “[t]he base 103 may be configured as a fitting or connector for use in a desired light socket, such as a traditional light socket” and that “[t]he AC/DC converter may be located in the base 103 or in another location.” JX000019, ’961 Patent at 3:17–19, 3:63–64. However, the only support for this claim limitation is Figure 11, where the AC/DC converter is contained entirely inside the fitting, a term that the patent equates with the base. No other location is discussed or shown for the AC/DC converter. *Gentry Gallery, Inc. v. Berklene Corp.*, 134 F.3d 1473, 1474–75 (Fed. Cir. 1998) (construing claim to limit location of recliner controls to being in a console between two recliners because specification exclusively discussed a “console” between two recliners as location for controls, and because “the scope of the right to exclude may be limited by a narrow disclosure.”).

Considering all of the claim language addressing the location of the AC/DC converter, Defendants’ proposed construction is correct.

### 3. Plaintiff’s Reply Position

<b>Plaintiff’s Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
Plain and ordinary meaning: The AC/DC converter is positioned in the base but does not need to be entirely in the base.	The AC/DC converter is contained inside the base

Once again, Defendants disagree that this term revolves around the meaning of “in,” yet Defendants proposed construction only modifies the claim language by replacing “positioned in” with “contained inside.” As discussed above with respect to Terms 2 and 3, the word “in”

generally, as well as in the context of the '961 patent, has a plain and ordinary meaning that encompasses both partially and entirely in.

Failing on the plain meaning, Defendants assert that the term must be construed only by reference to Figure 11 of the '961 patent. Opp'n at 18-19. As Defendants themselves quote, however, the '961 patent states that "[t]he base 103 *may* be configured as a fitting or connector for use in . . . a traditional light socket," such as the "traditional light bulb socket" of Figure 11. JX000019-21, '961 patent at 3:17-19 and 8:59-60 (emphasis added); Opp'n at 18. The word "may" is permissive; it does not mean "must" as Defendants' construction assumes. The Court should not contravene the plain meaning of words of the claim based upon a drawing of an optional configuration. Even if Defendants are correct that Figure 11 is the only illustration of the claimed embodiment, that still provides no justification to import limitations from this drawing in the claims.<sup>15</sup> *E.g., Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) ("[T]his court has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment." (collecting cases)); *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004) ("[E]ven where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using

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<sup>15</sup> Defendants rely on *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998) for the proposition that the claims can be limited to a single embodiment in the specification. First, *Gentry Gallery* was an invalidity case, finding claims to lack a written description rather than construing claims. Further, the Federal Circuit, in broadly construing claim terms and not limiting them based on a disclosed embodiment, distinguished *Gentry Gallery* because the specification at issue in *Gentry Gallery* stated that "the location of a claim element [was] 'the only possible location' and that other variations were 'outside the stated purpose of the invention.'" *Johnson Worldwide Assocs.*, 175 F.3d at 993. No such language is present here and the Court should construe the instant term broadly as written.

words or expressions of manifest exclusion or restriction.”) (internal quotations and citations omitted).

As with previous claim terms, this Court should reject Defendants’ attempts to restrict the claim to less than its plain and ordinary meaning. Plaintiffs believe no construction is necessary; if necessary, however, the term “in” should be construed (as above) as encompassing an AC/DC converter that may be partially or entirely in the base.

#### 4. Defendants’ Sur-Reply Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning: The AC/DC converter is positioned in the base but does not need to be entirely within the base	The AC/DC converter is contained inside the base

Like many terms, CAO’s construction of Term 8 ignores the claim language. Specifically, CAO does not dispute Defendants’ first argument on Term 8 that multiple claim limitations reflect a specific location where the AC/DC converter is “positioned”—inside the base. Defendants’ Answering Br. at 18. As quoted above, claims 32 and 33 expressly limit the location of the AC/DC converter: it is “positioned outside said interior volume” (cl. 32) and “in said base” (cl. 33). JX000027. This language expressly limits the claim and the specification says nothing to the contrary. CAO instead just criticizes Defendants’ reliance on Figure 11 because the specification uses the permissive word “may” in the phrase: “[t]he base 103 *may* be configured as a fitting or connector for use in...a traditional light socket.” CAO’s Reply Br. at 17 (emphasis CAO’s). But this “may” refers to configuration of the base, not the location of the AC/DC converter. CAO does not dispute that “Figure 11 is the only illustration of the claimed embodiment,” but cites law that the claim should not be limited unless “unless the patentee has demonstrated a clear intention to limit the claim scope.” CAO’s Reply Br. at 17 (quoting *Innova/Pure Water, Inc. v. Safari Water*

*Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004)). But CAO *did* “demonstrate[] a clear intention to limit the claim scope”—in the very language in claims 32 and 33 that CAO ignores.

# **I. TERM 9: “a primary heat sink”**

## **1. Plaintiff’s Opening Position**

<b>Plaintiff’s Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
Plain and ordinary meaning: A first heat sink (a first substance or device that absorbs or draws heat from another object).	Indefinite; or  A heat sink which is in turn mounted to a secondary heat sink having a plurality of panels.

The term “primary heat sink” has a plain meaning and needs no construction. Defendants’ indefiniteness argument appears to center on the word “primary,” since Defendants do not assert that the term “heat sink” is somehow indefinite in its proposed construction for Term 3 above. The term “primary,” however, is a common, non-technical word that has a meaning easily understood by lay persons.

Starting with the claim language, Claim 42 recites that the at least one LED chip from Claim 21 “is surface mounted on a primary heat sink that is mounted on said one of said panels of said heat sink.” ’961 patent, claim 42. This is simply a first heat sink that draws heat from the LED chip. There is no reference to a “secondary heat sink” in claim 42 or in any of the claim language on which claim 42 depends. Nothing in claims 1, 7, 8, or 21—the elements of which are incorporated into claim 42—includes a “secondary heat sink.” Defendants’ proposed construction adds restrictions superfluous and contradictory to the actual claim language.

Further, the term “primary heat sink” has been construed in another case involving Dr. Cao’s patents relating to LED curing lights. *See CAO Group, Inc. v. Magpie Tech. Corp.*, 2017 WL 396661 (D. Utah Jan. 30, 2017). The Utah District Court rejected an argument similar to that presented by Defendants here that attempted to incorporate a “secondary heat sink” into the

construction of “primary heat sink.” *Id.* \*6-8. The Court noted that based on the examples in the patent specification, “the terms ‘primary’ and ‘secondary’ do not necessarily connote the heat sink’s relative position to the LED or any difference in preference, orientation, or heat conductance properties.” *Id.* at \*7. Moreover, the Court found that the plain language of the claims in Dr. Cao’s LED curing light patents, “some of which recite only a primary heat sink, do not require the primary and secondary heat sinks to be in any particular order or position relative to the light source.” *Id.* The Court thus construed the terms “primary heat sink” and “secondary heat sink” to mean “first heat sink” and “second heat sink,” respectively—further noting that “these definitions do not connote any particular position of preference between the heat sinks.” *Id.*

The Utah District Court’s analysis is applicable here. Both the ’961 patent and the LED curing light patents involve LED technology and LED inventions made by the same inventor. Like the LED curing light patents, the ’961 patent claims sometimes recite only a primary heat sink and sometimes recite both a primary heat sink and secondary heat sink. As noted, claims 42 and 77 recites only a “primary heat sink.” Original (now cancelled) claim 10 recited both a primary heat sink and secondary heat sink, where the primary heat sinks were smaller and mounted on a secondary heat sink. But claim 42 recites only that “said LED chip is surface mounted on a primary heat sink that is mounted on said one of said panels of said heat sink.”

The specification further supports Plaintiff’s position. The specification describes several embodiments of surface-mounted LED chips. JX000021, ’961 patent at 7:40-8:37; Figs. 7a, 7b, 8a, 8b, and 9. For example, Figure 7a depicts a single LED chip or LED chip array where the chip or array is mounted in a well (503) of a heat sink (504). *Id.* at 7:40-44. The heat sink (504) is an example of a primary heat sink, *i.e.*, a first heat sink that draws heat from the LED chip. This single chip/array surface mount package may then be mounted on another heat sink or other surface. But

it is not necessary or required to mount the chip package with a primary heat sink to another (second) heat sink.

Contrary to Defendants’ proposed construction, the claim language does not require or even mention a “secondary heat sink.” The Court should reject Defendants’ proposed construction and adopt Plaintiff’s position.

## 2. Defendants’ Answering Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Not indefinite. Plain and ordinary meaning: A first heat sink (a first substance or device that absorbs or draws heat away from another object).	Indefinite; or: A heat sink which is in turn mounted to a secondary heat sink having a plurality of panels

The term “primary heat sink” is indefinite because it fails to “inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus*, 572 U.S. at 910.

CAO’s brief all but ignores the indefiniteness issue, addressing only Defendants’ alternative construction. CAO’s argument—which focuses on the word “primary” in isolation—confirms the indefiniteness problem. On the one hand, CAO asserts without support that “primary” “is a common, non-technical word that has a meaning easily understood by lay persons.” CAO’s Opening Br. at 18–19. On the other hand, CAO’s construction seeks to replace “primary” with “first,”<sup>16</sup> which is *not* the meaning of primary as understood by a POSA in the field. JX000410, ¶¶80–84. In the field, “primary” typically denotes particular attributes that make a structure “primary” in relation to another structure (*e.g.*, relative magnitude, size, location). JX000409, ¶83. However, unlike other “primary” structures, there is no common standard or objective way known to a POSA against which to determine what constitutes a “primary heat sink.” JX000409–10, ¶¶83–84; JX000679–82 (defining attributes of, *e.g.*, “primary electron,” “primary winding,” “primary

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<sup>16</sup> The phrase “first heat sink” does not appear anywhere in the specification.



capacitance,” “primary utilization factor”). There are numerous different attributes that could be used to determine whether a heat sink is a “primary heat sink” (*e.g.*, sinking the majority or most of the heat generated by the LED chip; being the largest in size or volume; etc.). JX000411, ¶84. The specification, however, provides no guidance.<sup>17</sup> The claim is therefore indefinite.

To the extent that the Court disagrees on indefiniteness, it should construe the term consistent with its only use in the specification, as Defendants’ propose. CAO argues that its construction is proper because a different court construed the term in different unrelated patents with different specifications. CAO’s Opening Br. at 19. This argument is misplaced, both because the specifications were different<sup>18</sup> and because the court was not asked to consider indefiniteness. *See CAO Group, Inc. v. Magpie Tech Corp.*, No. 2:15CV697DAK, 2017 WL 396661, \*6-7 (D. Utah Jan. 30, 2017). Importantly, the phrase “primary heat sink” appears only once in the JX000018, ’961 patent outside the claims: “The chips may be mounted directly to a primary heat sink which is in turn mounted to a multi-panel secondary heat sink.” ’961 Patent at Abstract. This is consistent with the examples provided in the specification. *See, e.g., id.* at 4:4–12 (discussing use of “surface mount LEDs . . . mounted directly on a heat sink” which are mounted onto a multi-panel secondary heat sink as shown in Figure 2).

### 3. Plaintiff’s Reply Position

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<sup>17</sup> That “primary” is not simply a generic indicator of “first” is consistent with the claims. The patentee knew when to use the generic “first” and “second” qualifiers to distinguish between two potentially otherwise identical limitations and when to use more limiting terms (such as cladding, active, reflective, primary, etc.) to describe particular characteristics of different limitations. *See, e.g.*, claims 1, 7, 8, 21, 42.

<sup>18</sup> CAO’s citations to the ’961 patent do not mention a primary heat sink, referring only to an undefined heat sink within an LED package. CAO’s Opening Br. at 20 (citing ’961 Patent at 7:40–8:37, FIGs. 7a, 7b, 8a, 8b, 9).

Plaintiff's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning: A first heat sink (a first substance or device that absorbs or draws heat from another object).	Indefinite; or  A heat sink which is in turn mounted to a secondary heat sink having a plurality of panels.

Defendants fail their burden to show “primary heat sink” is indefinite. As made clear in the parties’ proposed constructions for this term, the indefiniteness dispute is solely focused on the common, non-technical word “primary.” Both the claim language and the specification provide abundant support and guidance for a person of ordinary skill in the art to understand a “primary heat sink” in these claims.

At the outset, Defendants dismiss without analysis that the term “primary heat sink” has been construed in other patents involving LED lights—that construction finding no difficulty with clarity and adopting CAO Lighting’s proposed construction. Br. at 19-20; *CAO Group, Inc. v. Magpie Tech. Corp.*, 2017 WL 396661 at 6-8 (D. Utah Jan. 30, 2017). This opinion applies the plain and ordinary meaning of the word “primary” in the field of LED lighting.

In fact, Defendants note, helpfully, that the ’961 patent provides an example of a primary heat sink—a heat sink to which a chip may be directly mounted and then further mounted to a secondary heat sink. JX000018, ’961 patent at Abstract; Opp’n at 20. Claim 42, consistent with this, provides that “the LED chip is surface mounted on a primary heat sink.” Given the ordinary meaning of “primary” as first in rank, order or importance—this means that the LED chip is mounted to the first heat sink. *See*, JX000479-82.

Defendants resort to arguing that “primary” has a specific meaning in the field of transformers, where the primary and secondary windings perform different functions. Opp’n at 19. CAO Lighting submits that this has nothing to do with the application of the plain and ordinary

meaning of “primary” as used in the specification and claims of the ’961 patent, which is directed to the field of LED lighting—not transformers.

Defendants next argue, with no support, that the entire sentence from the specification that discusses the mounting of an LED chip to a primary heat sink should be imported from the specification into the claims. This claim construction tactic has repeatedly been rejected by the Federal Circuit. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2004) (Discussing “the danger of reading limitations from the specification into the claim” while reversing district court’s narrow claim construction.)

Contrary to Defendants’ proposed construction, the claim language does not require or even mention a “secondary heat sink.” The Court should reject Defendants’ proposed construction and adopt Plaintiff’s position.

#### 4. Defendants’ Sur-Reply Position

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Not indefinite. Plain and ordinary meaning: A first heat sink (a first substance or device that absorbs or draws heat away from another object).	Indefinite; or: A heat sink which is in turn mounted to a secondary heat sink having a plurality of panels

CAO’s response confirms that “primary heat sink” is indefinite. CAO again focuses on the word “primary” in isolation. But the claim term is “primary heat sink,” which as Dr. Karlicek explained and CAO does not dispute, has no known meaning in the field.

CAO concedes that “primary” does not generically mean “first,” arguing now that it means “first in rank, order or importance.” CAO’s Reply Br. at 18. CAO’s own definition supports indefiniteness, as there are three competing possibilities (rank/order/importance) even under CAO’s theory, and CAO provides no explanation for what makes a particular heat sink the most “important.” *See also* JX000411, ¶ 84.

CAO incorrectly argues that the technical dictionary Defendants rely upon is limited to “transformers.” It is not. CAO ignores, for example, that it also defines “primary electron.” *See also* Defendants’ Answering Br. at 19. CAO further ignores that Dr. Karlicek used the dictionary examples to contrast the known meaning of certain other “primary” components with a “primary heat sink,” which has no known meaning. *See* JX000411, ¶¶ 83-84.

Last, CAO does not dispute the only disclosure in the specification for “primary heat sink” is the passage in the Abstract, “a primary heat sink which is in turn mounted to a multi-panel secondary heat sink.” Thus, to the extent the court finds the term not indefinite, it should construe it as Defendants’ propose, so as to give effect to all the claim terms (“*primary* heat sink”).

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